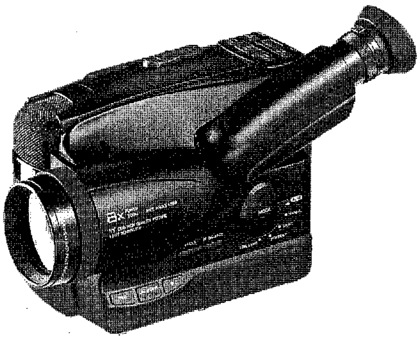
Camcorder **System: VHS-C/SECAM** **M610/39**

M610/19

Service
Service
Service



Service Manual

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Camcorder set M610/39 consists of

- M610/19	Camcorder
- SBC5460/00	AC adapter
- SBC5217	Rechargeable Battery 6V/1.2 Ahr
- SBC5509	AV Eurocable (mono)
- SBC5421/00	Carrying strap
- CR2032	Back-up Battery

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

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TECHNICAL DATA M610	
General	
Voltage	6.0V DC
Power	7.3W (Record, battery mode)
Video recording system	SECAM
Tape format	VHS-C (12.7mm)
Camera part	
Pick up element	CCD
Standard illumination	1400 lux
Minimum requ. illumination	1 lux
Image sensor	1/3 inch CCD
Lens	Built in 8:1 2speed power zoom lens with digital AI auto focus, auto iris F1.4 (5-40mm) filter diam. 49mm
View finder	0.6" Electric view finder
Video	
Heads	4 rotary heads, 1 flying erase head
Output	1.0Vp-p/ 75Ω unbalanced
Audio	
Head	1 stationary head (Normal audio)
Input	-70 dB, 4.7kΩ or more unbalanced
Output	-8dB, 47kΩ loaded
Weight	approx. 970g (without Battery pack)
Dimensions	129(W)x121(H)x247(D)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

SAFETY INSTRUCTIONS

- Safety regulations demand that the set be restored to its original condition and that components identical with the original types be used.
  Safety components are marked by the symbol ⚠
- All IC s and many other semi- conductors are susceptible to electrostatic discharges(ESD). Careless handling during repair may reduce life drastically. When repairing, make sure that you are conneted with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools on the same potential.
- A set to be repaired should always be connected to the mains via a suitable isolating transformer.
- Never replace any modules or any other parts while the set is switched on.
- Use plastic instead of metal alignment tools. This in order to prelude short-circuit or to prevent a specific circuit from being rendered unstable.

REMARKS

- The direct voltages and oscillograms ought to be measured relative to the set mass.
- The oscillograms and direct voltages have been measured in RECORD or PLAY mode.
- The semiconductors, which are mentioned in the circuit diagram and in the parts lists, are fully exchangeable per position with the semiconductors in the set, irrespective of the type designation of these semiconductors.

SICHERHEITSHINWEISE

- Die Sicherheitsvorschriften erfordern es, daß sich das Gerät nach der Reparatur in seinem originalen Zustand befindet und daß die zur Reparatur benutzten Ersatzteile mit den OriginalErsatzteilen identisch sind.
  Sicherheits-Bauteile sind mit der Markierung versehen. ⚠
- Alle IC's und Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD). Unvorschriftmässige Behandlung von Halbleitern im Reparaturfall, kann zur Zerstörung dieser Bauteile oder zu einer drastischen Reduzierung der Lebensdauer führen. Sorgen Sie dafür, dass Sie sich im Reparaturfall über ein Armband mit Widerstand auf dem gleichen Potential, wie die Masse des Gerätes befinden. Alle Bauteile, Werkzeuge und Hilfsmittel sind auf das gleiche Potential zu legen.
- Ein zu reparierendes Gerät ist immer über einen Trenntransformator an die Netzspannung anzuschliessen.
- Bei eingeschaltetem Gerät dürfen keine Module oder sonstige Einzelteile ausgetauscht werden.
- Zum Abgleich sind ausschliesslich Kunststoffwerkzeuge zu benutzen (keine Metallwerkzeuge verwenden). Dadurch wird vermieden, dass ein Kurzschluß entstehen kann oder eine Schaltung instabil wird.

ANMERKUNGEN

- Die Gleichspannungen und Oszillogramme sind gegen Gerätemasse zu messen.
- Die Oszillogramme und Gleichspannungen sind in RECORD oder PLAY gemessen.
- Die in den Stücklisten aufgeführten Bauteile sind positionsweise voll auswechselbar gegen die Bauteile in dem Gerät, ungeachtet der etwaigen Typenbezeichungen.

AVERTISSEMENTS

- Les normes de sécurité exigent qu'aprés réparation l'appareil soit remis dans son état d'origine et que soient utilisées les piéces de rechange identiques à celles spécifiées.
  Les composants de sécurité sont marqués ⚠
- Tout les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharger statiques (ESD). Leur longévité pourrait étre considérablement écourté par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations s'assurer de bien étre relié au méme potential que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.
- Toujours alimenter un appareil à réparer à travers un transfo d'isolement.
- Ne jamais remplacer les modules ni d'autres composants quand l'appareil est sous tension.
- Pour l'ajustage, utiliser des outils en plastique au lieu d'instruments métalliques. Ceci afin d'éviter les court - circuits et exclure l'instabilité dans certains circuits.

OBSERVATIONS

- La mésure des tensions continues et des oscillogrammes doit se faire par rapport à la terre de l'appareil.
- Les oscillogrammes et tension sont mésurées en mode RECORD ou PLAY.
- Les semi-conducteurs indiqués dans le schéma de principe et à la liste des compostants, sont interchangeables par repère sur ce chassis avec les semi-conducteurs de l'appareil quelle que soit la désignation de type donnée sur ces semi-conducteurs.

VEILIGHEIDSINSTRUCTIES

- Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, indentiek aan de oorspronkelijke, worden toegepast. De veiligheidsonderdelen zijn aangeduid met het symbool ⚠
- Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor, dat U tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.
- Sluit een apparaat dat gerepareerd wordt altijd via een scheidingstransformator aan op de netspanning.
- Verwissel nooit modules of andere onderdelen terwijl het apparaat is ingeschakeld.
- Gebruik voor het afregelen plastic i.p.v metalen gereedschap. Dit om mogelijke kortsluiting te voorkomen of een bepaalde schakeling instabiel te maken.

OPMERKINGEN

- De gelijksspanningen en oscillogrammen dienen gemeten te worden ten opzichte van de apparaat aarde.
- De oscillogrammen en gelijksspanningen zijn in RECORD of PLAY mode gemeten.
- De halfgeleiders, die in het pricipeschema en in de stuklijsten, zijn vermeld, zijn per positie volledig uitwisselbaar met de halfgeleiders in het apparaat, ongeacht de typeaanduiding op deze halfgeleiders.

AVISOS

- Las instrucciones de seguridad exigen que, después de la reparación, el aparato se encuentre en el estado original y que las piezas de repuesto, utilizadas para la reparación, sean idénticas a las originales.
  Los componentes de seguridad están marcados con ⚠
- Todos los IC y semiconductores son sensibles a descargas electrostáticas (ESD). Un tratamiento no conforme a las instrucciones de semiconductores, en caso de reparación, podría llevar a la destrucción de estos componentes o a una reducción drástica de la duración. En caso de reparación tenga cuidado de que esté al mismo potencial que la masa del aparato, por una pulsera con resistencia. Ponga todos los componentes, herramientas y recursos al mismo potencial.
- Para reparar un aparato hay que conectarlo siempre a la alimentación a través de un transformador de aislamiento.
- Cuando un aparato está en marcha no pueden ser cambiados módulos u otras piezas de repuesto.
- Para los ajustes hay que utilizar exclusivamente herramientas de plástico (nunca herramientas metálicas). Así se evitarán cortocircuitos y circuitos inestables.

NOTAS

- Hay que medir las tensiones continuas y los oscilogramas contra la masa del aparato.
- Los oscilogramas y las tensiones continuas son medidas en "RECORD" y "PLAYBACK"
- Los componentes mencionados en las listas se los puede cambiar por los componentes en el aparato, a pesar de eventuales designaciones de tipos.

AVVERTIMENTI

- Le prescrizioni di sicurezza richiedono che l'apparecchio sia ricondotto alle condizioni originali e che siano usati ricambi originali. Componenti di sicurezza sono marcati con ⚠
- Tutti gli IC e semiconduttori sono sensibili a scariche elettrostatiche (ESD). Noncuranze durante la riparazione di semiconduttori possono danneggiarli o condurre ad una riduzione drastica della durata. Durante la riparazione assicurarsi di essere collegati allo stesso potenziale attraverso un bracciale di protezione contro scariche elettrostatiche. Inoltre tenere anche tutti i componenti e gli attrezzi a questo potenziale.
- Apparecchi da riparare bisogna collegarli sempre via un trasformatore isolante (separatore) alla tensione normale.
- Non scambiare moduli o altri componenti quando l'apparecchio è in funzione.
- Per l'accordo usare soltanto attrezzi di plastica (non usare attrezzi metallici). Cosí si evitano cortocircuiti e collegamenti instabili.

OSSERVAZIONI

- Misurare le tensioni continue e gli oscillogrammi riferiendosi alla massa dell'apparecchio.
- Gli oscillogrammi e le tensioni continue sono misurati in RECORD o PLAYBACK.
- I semiconduttori che sono menzionati negli schemi e nelle liste sono intercambiabili con quelli di pari tipo nonostante siano montati in posizione diversie.

Servicing of SMDs (Surface Mounted Devices)

1. General cautions on handling and storage.

- Oxidation on the SMDs terminals results in poor soldering. Do not handle SMDs with bare hands.
- Avoid for storage places that are sensitive to oxidation such as places with sulfur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity.As a result the capacitance or resistance value of the SMDs may be affected.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

2. Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. Small components can, by means of litz wire and a limited horizontal force, be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A) or
- While holding the SMD with a pair of tweezers take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

Caution on removal:

- When handling the soldering iron, use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W), must preferably be provided with a thermal control (soldering temperature about 225 to 250°C).
- The chip, once removed, must **never** be used again.

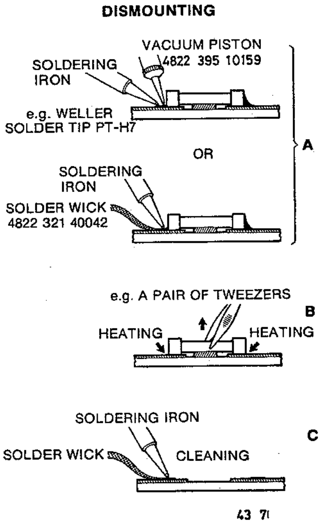

DISMOUNTING
SOLDERING IRON
VACUUM PISTON 4822 395 10159
e.g. WELLER SOLDER TIP PT-H7
OR
A
SOLDERING IRON
SOLDER WICK 4822 321 40042
e.g. A PAIR OF TWEEZERS
B
HEATING
HEATING
SOLDERING IRON
C
SOLDER WICK
CLEANING
43 71

Fig 1

3. Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component at one side. Ensure that the component is positioned well on the solder lands (see Fig. 2A).
- Next complete the soldering of the terminals of the component (see Fig. 2B).

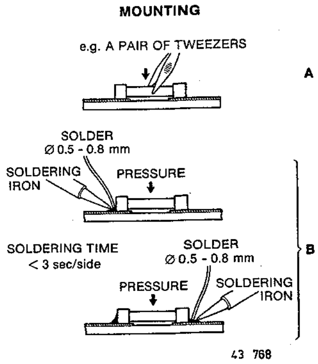

MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
Ø 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
< 3 sec/side
SOLDER
Ø 0.5 - 0.8 mm
B
PRESSURE
SOLDERING IRON
43 768

Fig. 2

Caution on attachment:

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering must be as quick as possible; care must be taken to avoid damage to the terminals and the body itself.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) must preferably be provided with a thermal control (soldering temperature about 225 to 250°C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional with the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

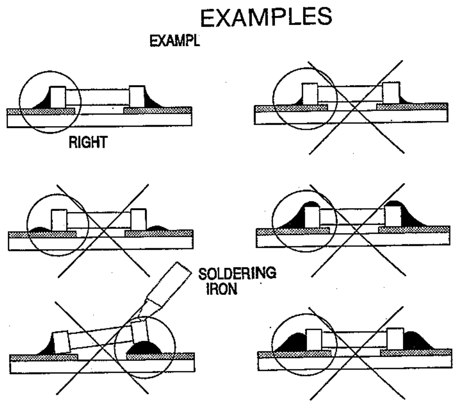
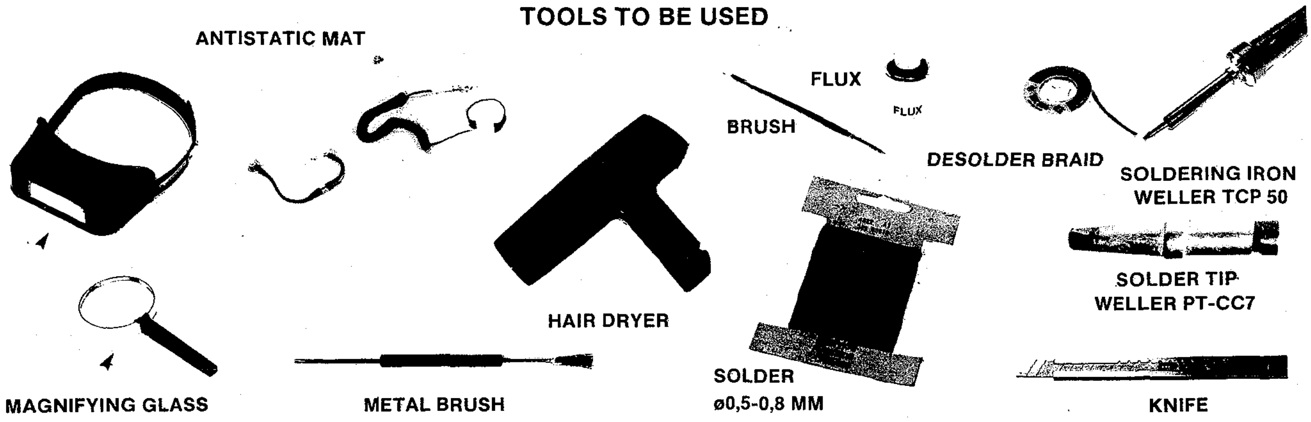

EXAMPLES
EXAMPL
RIGHT
SOLDERING IRON

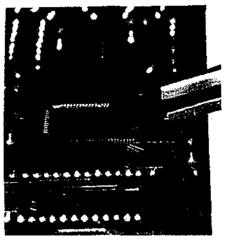
Fig. 3

FLATPACK REPLACEMENT

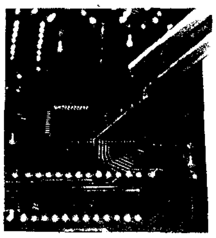
TOOLS TO BE USED


ANTISTATIC MAT
FLUX
BRUSH
FLUX
DESOLDER BRAID
SOLDERING IRON
WELLER TCP 50
SOLDER TIP
WELLER PT-CC7
HAIR DRYER
MAGNIFYING GLASS
METAL BRUSH
SOLDER
ø0,5-0,8 MM
KNIFE

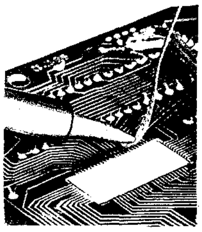
DISMOUNTING



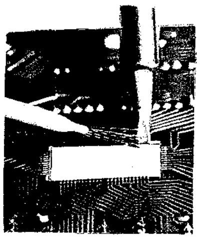
CUTTING
THE LEADS



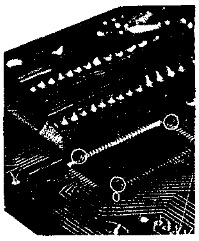
WRONG
TRACKS WILL
BE DAMAGED



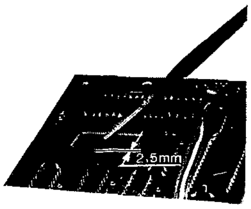
CLEANING
THE TRACKS



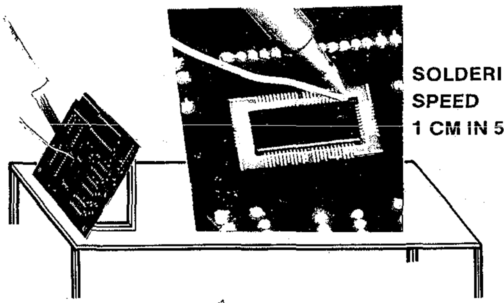
MOUNTING



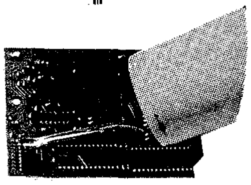
FIXING IC
AT THE CORNERS



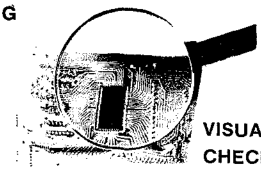
APPLYING FLUX



SOLDERING:
SPEED
1 CM IN 5 SEC.

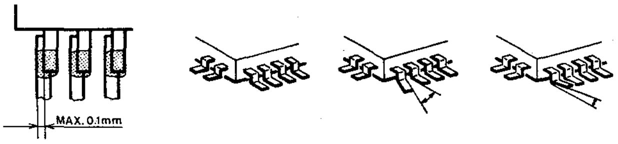


DRYING



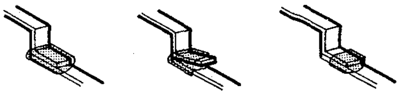
VISUAL
CHECK

ALIGNING THE LEADS



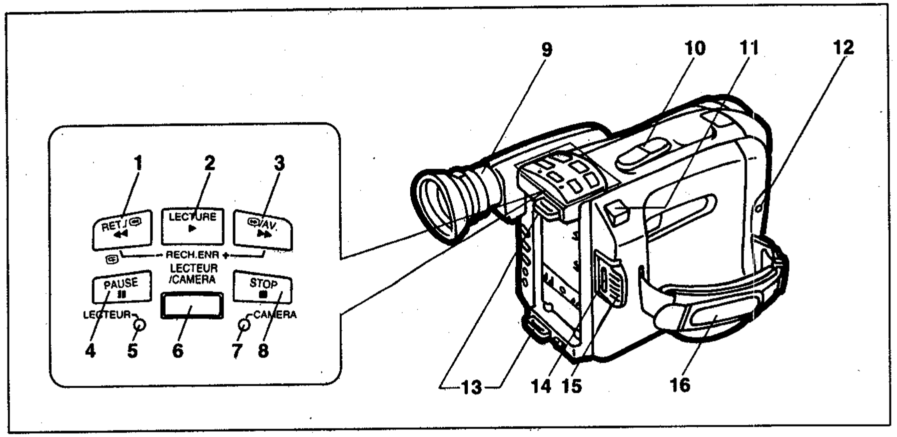
RIGHT WRONG WRONG

SOLDERING



RIGHT WRONG WRONG

SECTION 1
GENERAL DESCRIPTIONS


1
2
3
RET./⊖ ◄◄
LECTURE ►
⊖/AV. ►►
⊖ RECH.ENR
LECTEUR /CAMERA
PAUSE ❚❚
STOP ■
LECTEUR
CAMERA
4
5
6
7
8
9
10
11
12
13
14
15
16

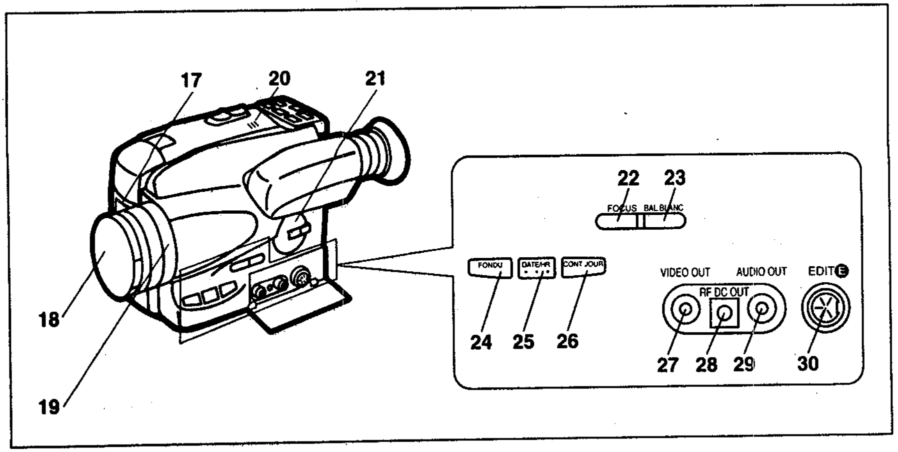
Commandes et fonctions

1 Touche [RET./⊖]
Appuyer sur cette touche:
- pour confirmer que l'enregistrement est satisfaisant.
- pour lire en sens arrière à grande vitesse (repérage arrière).
- pour rebobiner la bande.
- Recherche d'une séquence précédemment enregistrée (recherche caméra).

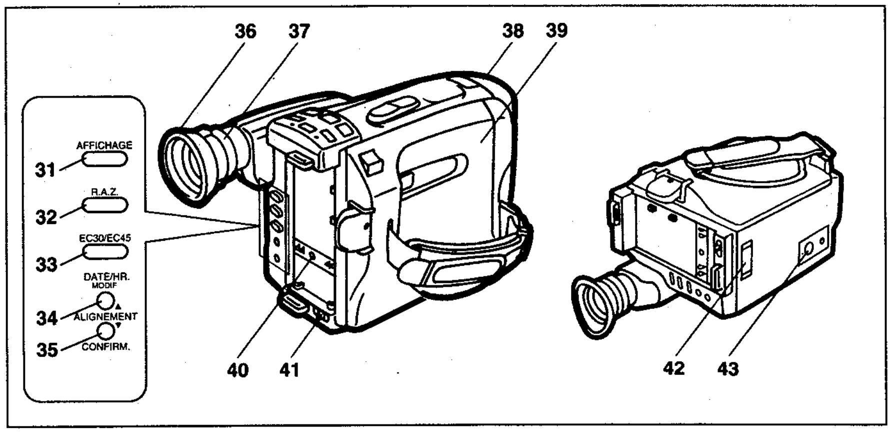
2 Touche [LECTURE]

3 Touche [⊖/AV.]
Appuyer sur cette touche:
- pour lire en sens avant à grande vitesse (repérage avant).
- pour rebobiner la bande en avant.
- Recherche d'une séquence précédemment enregistrée (recherche caméra).

4 Touche [PAUSE]
5 Témoin "LECTEUR"
6 Touche [LECTEUR/CAMERA]
7 Témoin "CAMERA"
8 Touche [STOP]
9 Viseur
10 Touche de zoom [W T]
11 Touche [EJECT]
12 Prise [MIC]
13 Pattes d'attaches de bandoulière
14 Touche marche/arrêt
15 Interrupteur [MARCHE]
16 Courroie de poignée


17
20
21
18
19
22
23
FOCUS
BAL.BLANC
FONDU
DATE/HR.
CONT.JOUR
24
25
26
VIDEO OUT
AUDIO OUT
RF DC OUT
EDIT
27
28
29
30

17 Capteur de balance des blancs
18 Capuchon d'objectif
19 Bague de mise au point
20 Fentes du capteur de condensation
A travers ces fentes, le caméscope détecte la condensation. Prendre soin à ne pas laisser ces fentes s'encrasser avec de la saleté et ne pas les recouvrir avec les doigts ou autre chose.
21 Sélecteur [AE]
22 Touche [FOCUS]
23 Touche [BAL.BLANC]
24 Touche [FONDU]
25 Touche [DATE/HR.]
26 Touche [CONT.JOUR]
27 Prise [VIDEO OUT]
28 Prise [RF DC OUT]
29 Prise [AUDIO OUT]
30 Prise [EDIT]


36
37
38
39
AFFICHAGE
R.A.Z.
EC30/EC45
DATE/HR. MODIF
ALIGNEMENT
CONFIRM.
31
32
33
34
35
40
41
42
43

31 Touche [AFFICHAGE]
32 Touche [R.A.Z.]
33 Touche [EC30/EC45]
34 Touche [DATE/HR./MODIF. • ALIGNEMENT ▲]
Appuyer sur cette touche pour régler l'alignement lorsque durant la lecture, l'image contient des barres parasites, ou pour passer d'une indication à l'autre pendant le réglage de la date et de l'heure.
35 Touche [DATE/HR./CONFIRM. • ALIGNEMENT ▼]
Appuyer sur cette touche pour régler l'alignement lorsque durant la lecture, l'image contient des barres parasites, ou pour changer les chiffres pendant le réglage de la date et de l'heure.
36 Œilleton
37 Bague du correcteur d'oculaire
38 Microphone
39 Logement de cassette
40 Prise [ENT CC]
41 Bouton d'éjection de la pile-bouton
42 Porte pile-bouton
43 Réceptacle du trépied

Technical Information

Service caution

1–1. Service Extension Cables

Use the following extension cables when checking or adjusting the individual circuit boards.

	PART NBR	PART NAME	CONNECTION	Q'TY
1	4822 321 62075	24 PIN FLAT CABLE	CAMERA C.B.A. FP301~MAIN C.B.A. FP1002	1
2	4822 321 62073	3 PIN EXTENSION CABLE	EVF P802~MAIN C.B.A. P301	1
3	4822 321 62074	10 PIN EXTENSION CABLE	CAMERA C.B.A. B202~CAMERA OPERATION	1
4	4822 321 62074	10 PIN EXTENSION CABLE	MAIN C.B.A. B4003~AV-JACK	1
5	4822 321 62076	5 PIN EXTENSION CABLE	MAIN C.B.A. P6001~SIDE CASE PO6701	1
6	4822 321 62072	14 PIN EXTENSION CABLE	MAIN C.B.A. B6003~VTR OPERATION C.B.A. B6501	1
7	4822 320 50234	18 PIN FLAT CABLE	MAIN C.B.A. FP6001~CHASSIS	1
8	4822 321 62071	7 PIN FLAT CABLE	MAIN C.B.A. FP4002~CHASSIS	1
9	4822 321 62346	24 PIN EXTENSION CABLE	MAIN C.B.A. B6001~DRIVE C.B.A. P2101	1
10	4822 321 62214	8 PIN FLAT CABLE	CAMERA C.B.A. FP304~SECAM ENCODER FP8601	1
11	4822 321 62215	10 PIN FLAT CABLE	MAIN C.B.A. FP8001~SECAM ENCODER FP8501	1
12	4822 321 62076	5 PIN EXTENSION CABLE	CAMERA C.B.A. VEE8558~SECAM ENCODER P8681	1

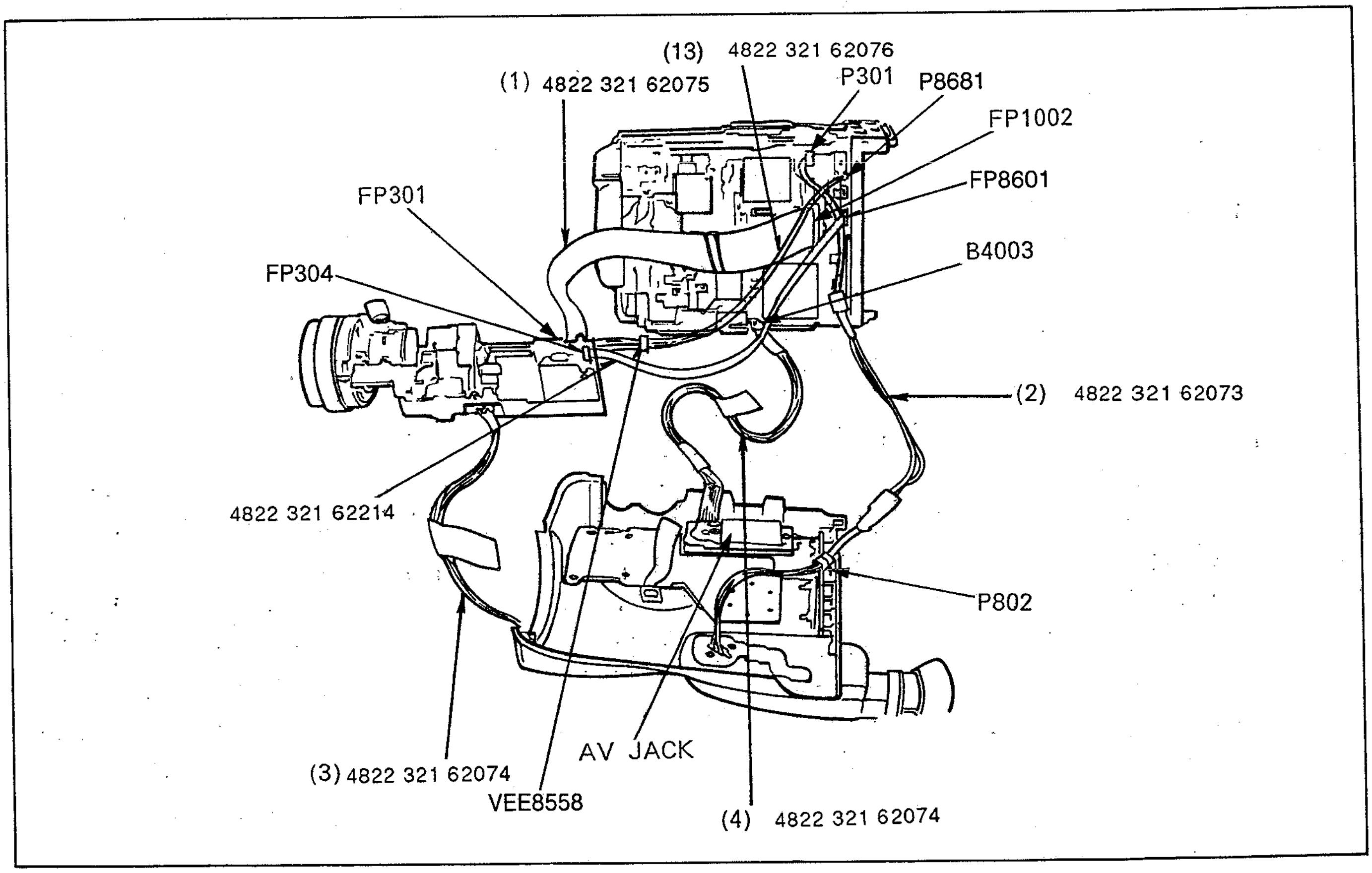

(13) 4822 321 62076
(1) 4822 321 62075
P301
P8681
FP1002
FP8601
FP301
B4003
FP304
(2) 4822 321 62073
4822 321 62214
P802
AV JACK
(3) 4822 321 62074
VEE8558
(4) 4822 321 62074

Fig. T1

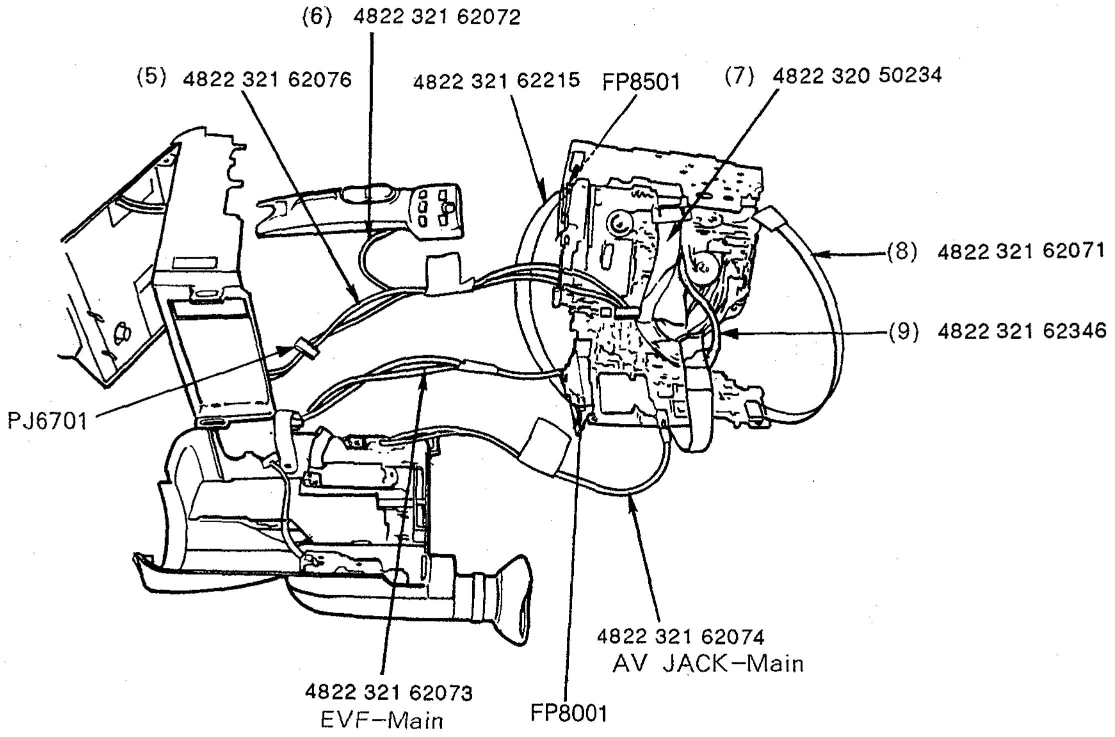
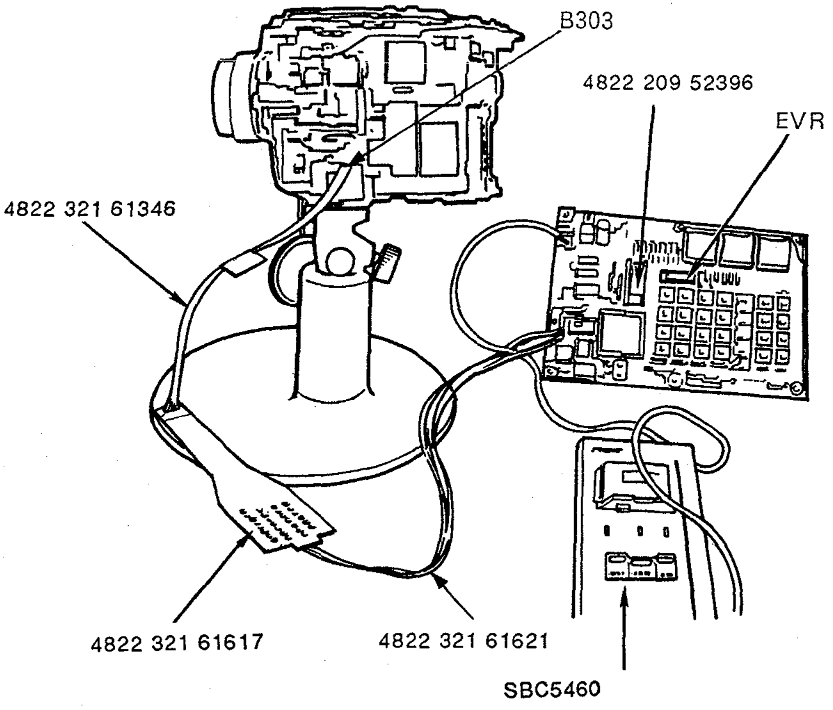

(6) 4822 321 62072
(5) 4822 321 62076
4822 321 62215
FP8501
(7) 4822 320 50234
(8) 4822 321 62071
(9) 4822 321 62346
PJ6701
4822 321 62074
AV JACK–Main
4822 321 62073
EVF–Main
FP8001

Fig. T2


B303
4822 209 52396
EVR
4822 321 61346
4822 321 61617
4822 321 61621
SBC5460

PIN ARRANGEMENT OF B303

1	CAMERA CLOCK
2	SID
3	VD
4	Y SIGNAL
5	CDS OUT
6	A/D IN
7	Vref H
8	Vref T
9	OP2
10	WIDE
11	IRIS OPEN
12	RESET
13	GND
14	5V
15	TELE
16	Z.ENC
17	Vref–T
18	Vref–L
19	SUB
20	AGC IN
21	AF CLOCK
22	AF DATA
23	CAMERA TEST
24	GND

Fig. T3

1–2. New ROM IC for EVR fixture.

We are pleased to introduce the new ROM IC 4822 209 52396 for EVR fixture that we developed to adjust this Movie Camera.
This ROM IC will provide you with many superior futures as automatic calculation of auto white balance and/or colour reproduction and more.

We are also pleased to introduce the new connecting cables 4822 321 61621, 321 61617, 321 61346 for this Movie Camera and EVR Fixture 4822 321 61054

Connections between this Movie Camera and EVR fixture are solderless when using the 4822 321 61621 4822 321 61617, 4822 321 61346
Please refer to Fig.T4 for how to use the cables.

ROM Number	Service Code 4822	Model	Function	EVR connection cable
ROM 1	209 52103	VKR9010	- General adjustment for Camera unit - Automatic calculation for AWB & color reproduction - Automatic average data rewriting	4822 321 61626
ROM 3	209 52189	VKR6847, VKR6875	- General adjustment for Camera unit - Automatic calculation for AWB & color reproduction - Automatic average data rewriting	4822 321 61327
ROM 5	209 52265	VKR9015, VKR6878, VKR6853	- General adjustment for Camera unit - Automatic calculation for AWB & color reproduction - Automatic average data rewriting	4822 321 61621 4822 321 61617 4822 321 61327
ROM 8	209 52347	VKR6890	- General adjustment for Camera unit - Automatic calculation for AWB & color reproduction - Automatic average data rewriting	4822 321 61621 4822 321 61617
ROM 13	209 52396	M620 M610	- General adjustment for Camera unit - Automatic calculation for AWB & color reproduction - Automatic average data rewriting	4822 321 61621 4822 321 61617 4822 321 61346

2. Service Information display (S.I.D.Mode)

2–1. General

This movie camera has the Service Information display system which quick trouble shooting. Pressing the [COUNTER–RESET], [TRACKING–DOWN] and [STOP] switch simultaneously, After that unit into Service Information display mode Service Information display has following Informations.

(1) Motor condition Display.(Motor lock)
(2) Information of Mechanism Position.
(3) KEY IN Information Display for VTR/CAMERA Operation KEY.
(4) Tape condition Display.(Tape End detect etc)

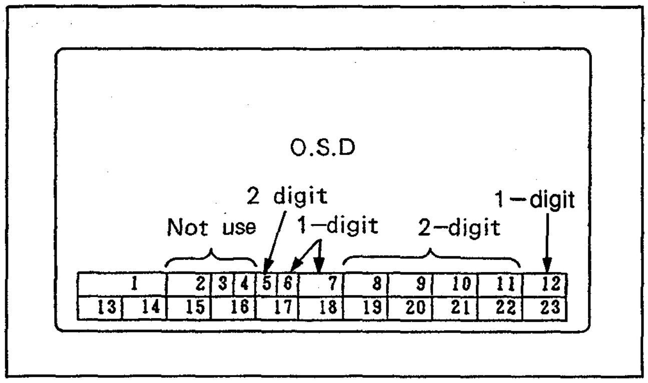


Fig. T5

Service Mode

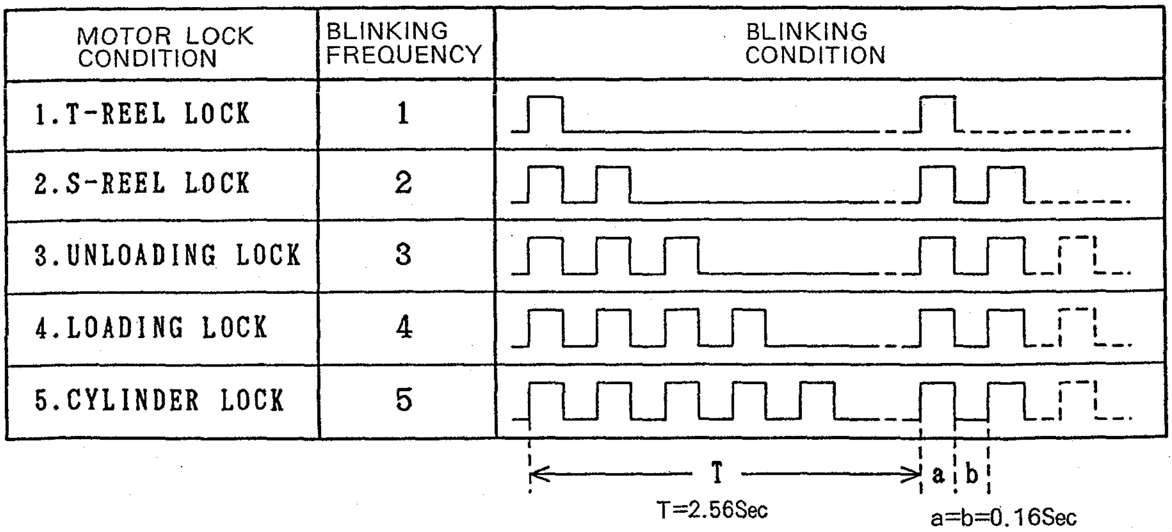
This Movie camera is possible to see RAM data of IC6001 on the TV screen or EVF.
How to read the RAM data is shown in Fig.T8.
All data is displayed in the Hexadecimal Number.
(letters and number 0 or F)

Note:
Pressing the [COUNTER–RESET], [TRACKING –DOWN] and [stop] Switch and [COUNTER–RESET], [TRACKING–DOWN] and [STOP] switch simultaneously, same time turn on the power switch.
After that this Movie camera Shows data 1 to data 23 on TV screen as shown in Fig.T6–T17.

2–2. Motor condition

Motor locked occur during Service Information display mode, Power LED for camera blinked according to Motor lock condition as follows.

Note:
After detect the Motor locked, unit turn off the Power and then Power LED blinked.



MOTOR LOCK CONDITION	BLINKING FREQUENCY
1.T-REEL LOCK	1
2.S-REEL LOCK	2
3.UNLOADING LOCK	3
4.LOADING LOCK	4
5.CYLINDER LOCK	5

Fig. T6

(1) Data Number 1:
If Data 1 indicate "CYL", There is possibility that cylinder Motor is locked up.

INDICATION AT POSITION 1	CONDITION OF MOTOR
TRL	REEL is locked up
UNLD	Unloading condition
LOAD	Loading condition
CYL	Cylinder Motor is locked up

Fig. T7

DATA NUMBER	DATA CONTENTS
1	Data Number 1 is position that indicates Motor conditions data
2~4	Not used
5	Data Number 5 is position that indicates key operation information
6	Data Number 6 is position that indicates Mechanism position data
7	Data Number 7 is position that indicates tape condition
8~12	Data Number 8 to 12 are position that indicates I/O condition of IC6001
13~14	Not used
15	Not used
16~23	Not used

Fig. T8

2-3. Detail of Data for Service Information Display

(1) Data Number 1:
If Data 1 indicate "CYL", There is possibility that cylinder Motor is locked up.

INDICATION AT POSITION 1	CONDITION OF MOTOR
TRL	REEL is locked up
UNLD	Unloading condition
LOAD	Loading condition
CYL	Cylinder Motor is locked up

Fig. T9

(2) Data Number 5 (2 digit)
When the pushed STOP, Data "00" Indicate.

INDICATION AT POSITION 5	KEY OPERATION
00	STOP
01	EJECT
02	REWIND
03	FF
04	REVIEW
05	CUE
06	PAUSE
08	REC
09	A. DUB
0A	PLAY
0C	F. ADV
54	COUNTER CLEAR
55	COUNTER MEMORY
57	OSD ON/OFF
67	DATA ON/OFF
9F	EDIT
B1	TRACKING UP
B2	TRACKING DOWN
B3	INSERT
CC	START/STOP
FF	NOP

Fig. T10

(3) Data Number 6 (1 digit)
If Data Number 5 indicate "01", Mechanism is Eject Position.

INDICATION AT POSITION 6	MECHANISM CONDITION
1	EJECT
2	STOP
3	P-STOP
4	FF/REW
5	MID (HSFR)
6	RELATIVE POSITION
7	STOP 2
8	RELATIVE POSITION
9	PLAY
A	DON

Fig. T11

(4) Data Number 7 (1 digit)
If Data Number 7 indicate "A", There is possibility that sensor Detect the tape End.

INDICATION AT POSITION 7	TAPE CONDITION
0	Normal condition
3	There is no video cassette inside
9	Detect the begining of Tape
A	Detect the Tape end

Fig. T12

(5) Data Number 8 (2 digit)
Data Number 8 is position that indicates I/O condition of IC6001.

INDICATION AT POSITION 8	I/O PORT CONDITION FOR IC6001
80	FF Key
40	STOP Key
20	PLAY Key
10	COUNTER CLEAR Key
08	SP/LP Key
04	TRACKING DOWN Key
02	FACT SW (INCLUDED)
01	NOTAPE SW (INCLUDED)

Fig. T13

(6) Data Number 9 (2 digit)
Data Number 9 is position that indicates I/O condition of IC6001.

INDICATION AT POSITION 9	I/O PORT CONDITION FOR IC6001
80	PAUSE Key
40	REW Key
20	CAM/VTR Key
10	DISPLAY Key
08	TAPE Key
04	TRACKING UP Key
02	NOT USE
01	NOT USE

Fig. T14

(7) Data Number 10 (2 digit)
Data Number 10 is position that indicates I/O condition of IC6001.

INDICATION AT POSITION 10	I/O PORT CONDITION FOR IC6001
80	NOT USE
4E	ADP/BATT IN
20	NOT USE
5E	EJECT Key
08	POWER Key
04	NOT USE
02	NOT USE
4F	S/S Key

Fig. T15

(8) Data Number 11 (2 digit)
Data Number 11 is position that indicates I/O condition of IC6001.

INDICATION AT POSITION 11	I/O PORT CONDITION FOR IC6001
80	NOT USE
4C	TELE Key
2C	NOT USE
1C	WIDE Key
04	CAM. TEST IN
02	ATR. OFF IN
01	NOT USE
00	NOT USE

Fig. T16

(9) Data Number 12 (1 digit)
Data Number 12 is position that indicates I/O condition of IC6001.

INDICATION AT POSITION 12	I/O PORT CONDITION FOR IC6001
7	IR IN
6	NOT USE
5	NOT USE
4	CASETTE DOWN IN
3	SAFETY TAB IN
2	POSITION SW3 IN
1	POSITION SW2 IN
0	POSITION SW1 IN

Fig. T17

3. HOW TO CHECK DIGITAL CIRCUIT (PROCESS)(Using Ramp Generator)

3–1. Checking Principle

The digital circuit can be checked if a ramp signal (sawtooth signal) is supplied to the input of A/D Converter(IC301–21). The output of A/D Converter is described below.
In addition to the A/D Converter (IC301) output, all digital ICs input and output signals become specified pulses, which are listed in schematic diagram.

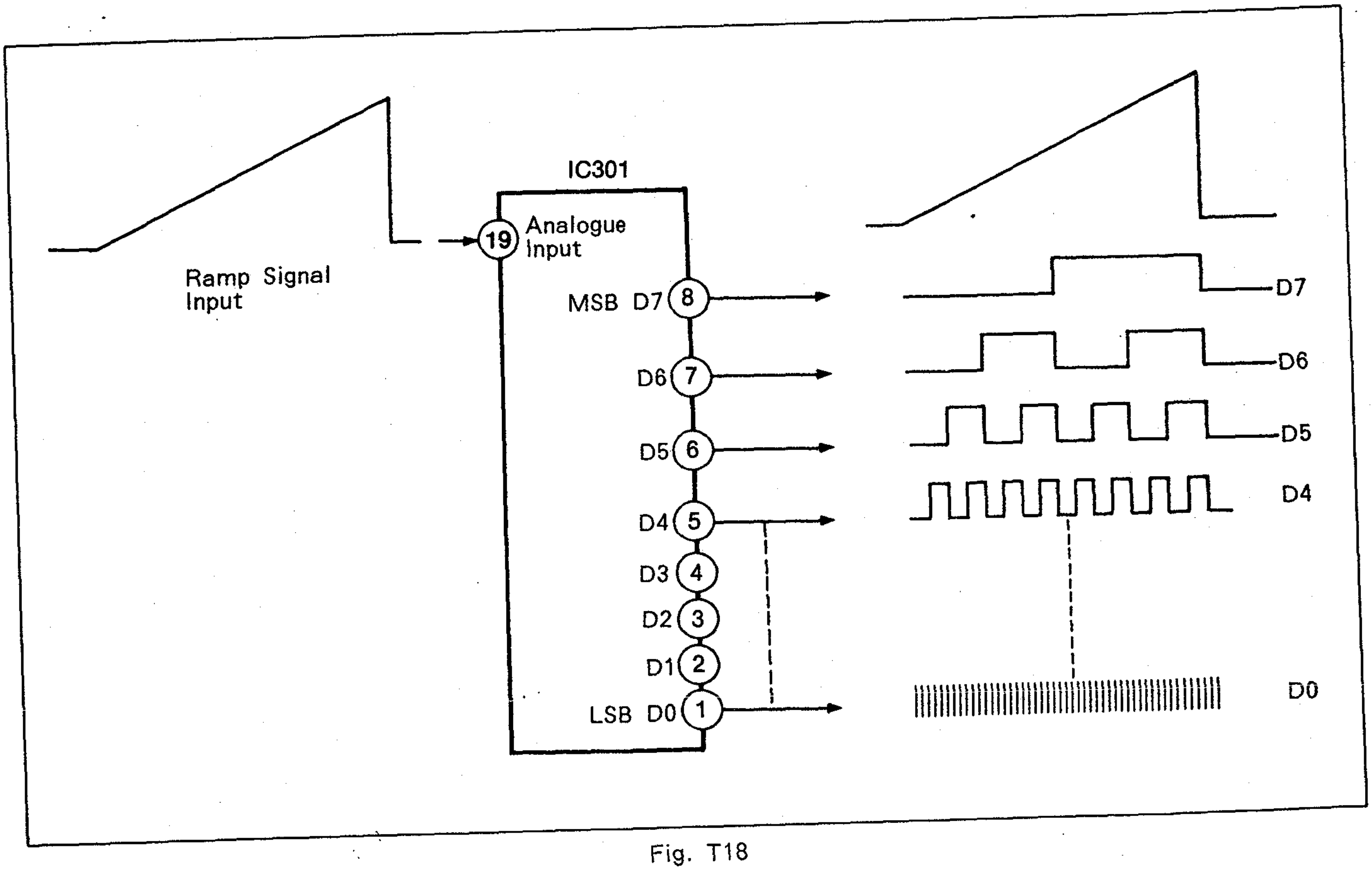
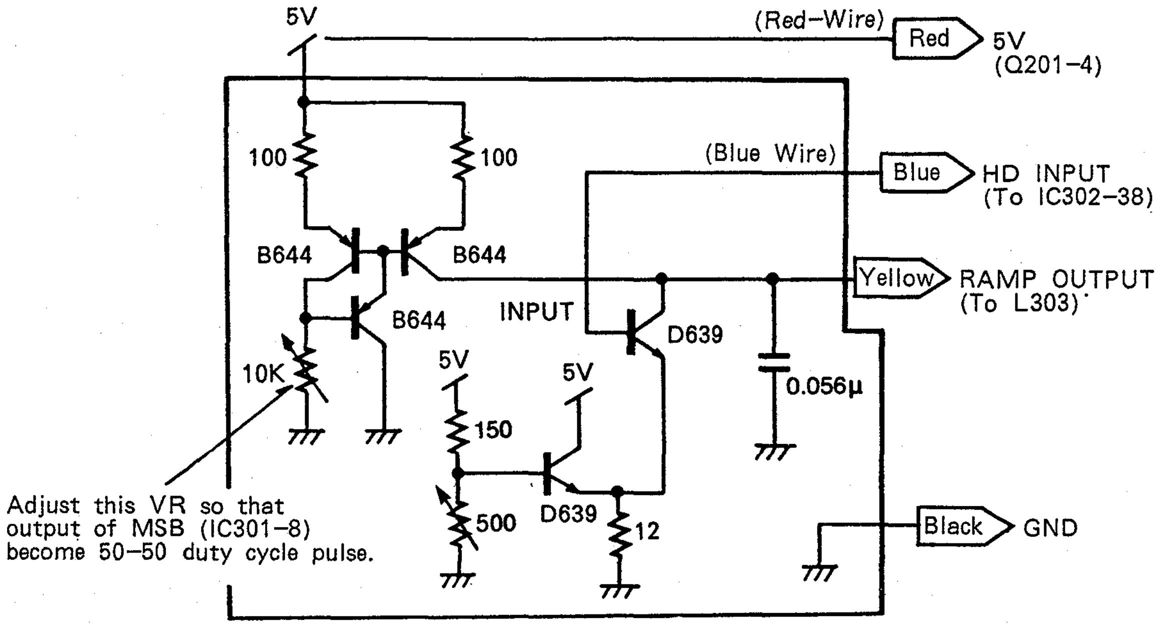

Ramp Signal Input
IC301
19
Analogue Input
MSB D7 8
D6 7
D5 6
D4 5
D3 4
D2 3
D1 2
LSB D0 1
D7
D6
D5
D4
D0

Fig. T18

3–2. How to Connect ramp generator

In order to generate a ramp signal that synchronizes with the HD(horizontal drive) of the camera, the following ramp generator circuit has been designed.
Construct and connect it to process board as shown in Fig.T19,20.


5V
(Red–Wire)
Red
5V
(Q201–4)
100
100
(Blue Wire)
Blue
HD INPUT
(To IC302–38)
B644
B644
Yellow
RAMP OUTPUT
(To L303)
B644
INPUT
D639
10K
5V
5V
0.056µ
150
500
D639
12
Black
GND

Adjust this VR so that output of MSB (IC301–8) become 50–50 duty cycle pulse.

ITEMS	VALUE	PCS
RESISTOR		
4822 116 52179	12ohm	1
4822 116 52175	100ohm	2
4822 116 33748	150ohm	1
VARIABLE RESISTOR		
	10Kohm	1
	500 ohm	1
TRANSISTOR		
4822 130 42252	PNP	3
4822 130 42255	NPN	2
CAPACITOR		
	0.056µ	1

Fig. T19

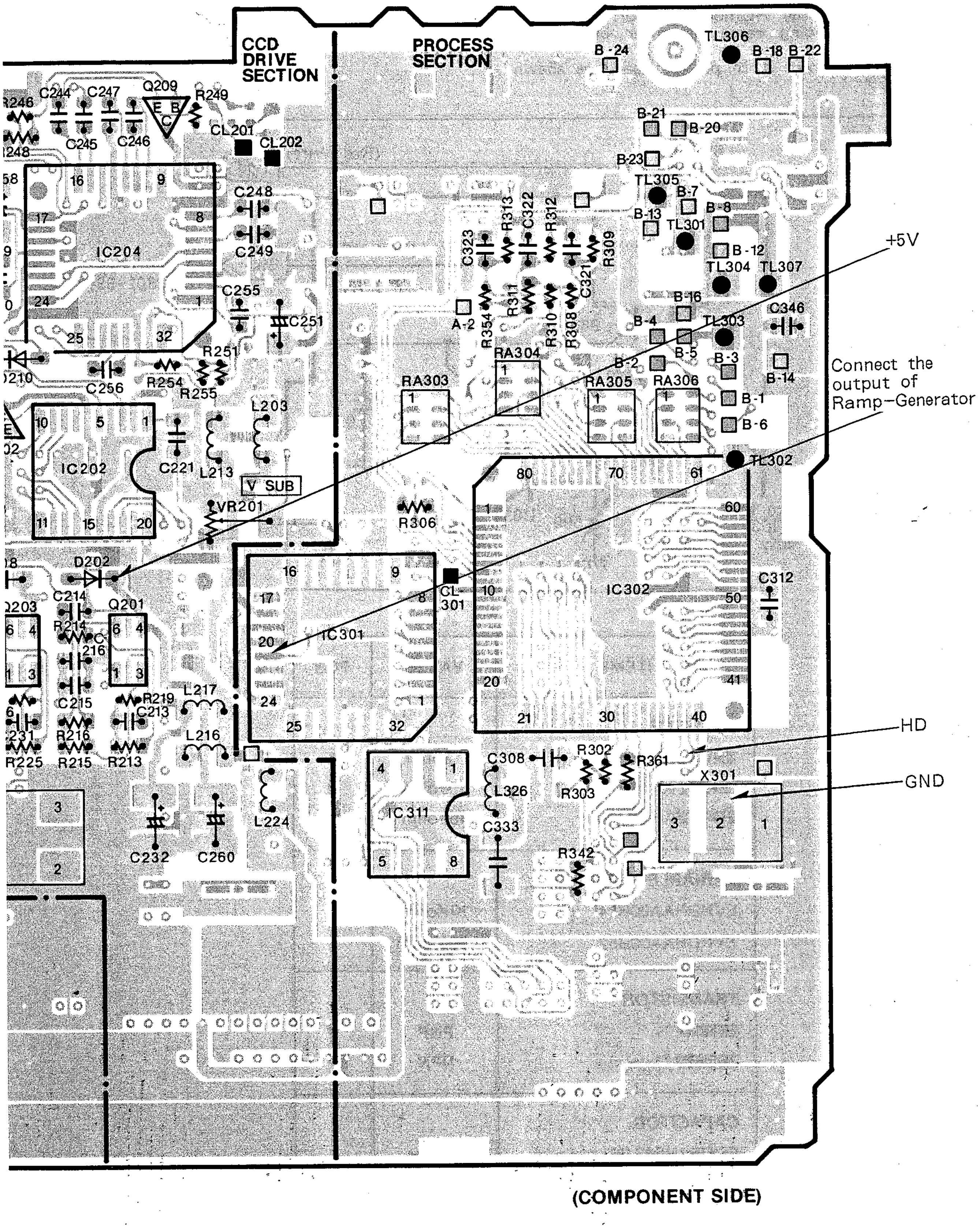

CCD DRIVE SECTION
PROCESS SECTION
+5V
Connect the output of Ramp–Generator
HD
GND
IC204
IC202
IC301
IC302
IC311
VR201
V SUB
D202
TL302
X301
(COMPONENT SIDE)

Fig. T20

SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES

1. Removal of Tripod Frame

   Remove.....3 screws(A)

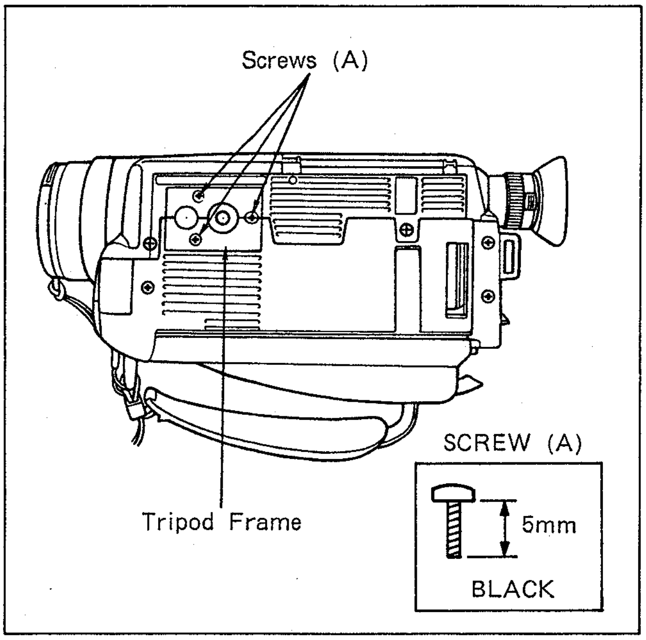

Screws (A)
Tripod Frame
SCREW (A)
5mm
BLACK

Fig. D1

2. Removal of Side Case (R)

   Remove......3 screws (B) and screw (C)
   Disconnect.....EVF Connector(P3001)
   Disconnect.....Cam Operation Connector(B302)
   AV Jack Connector(B4003)

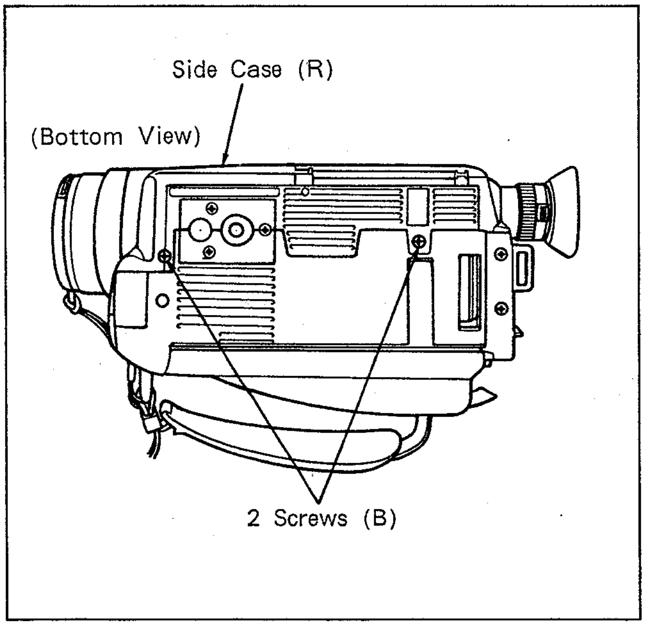

Side Case (R)
(Bottom View)
2 Screws (B)

Fig. D2-1

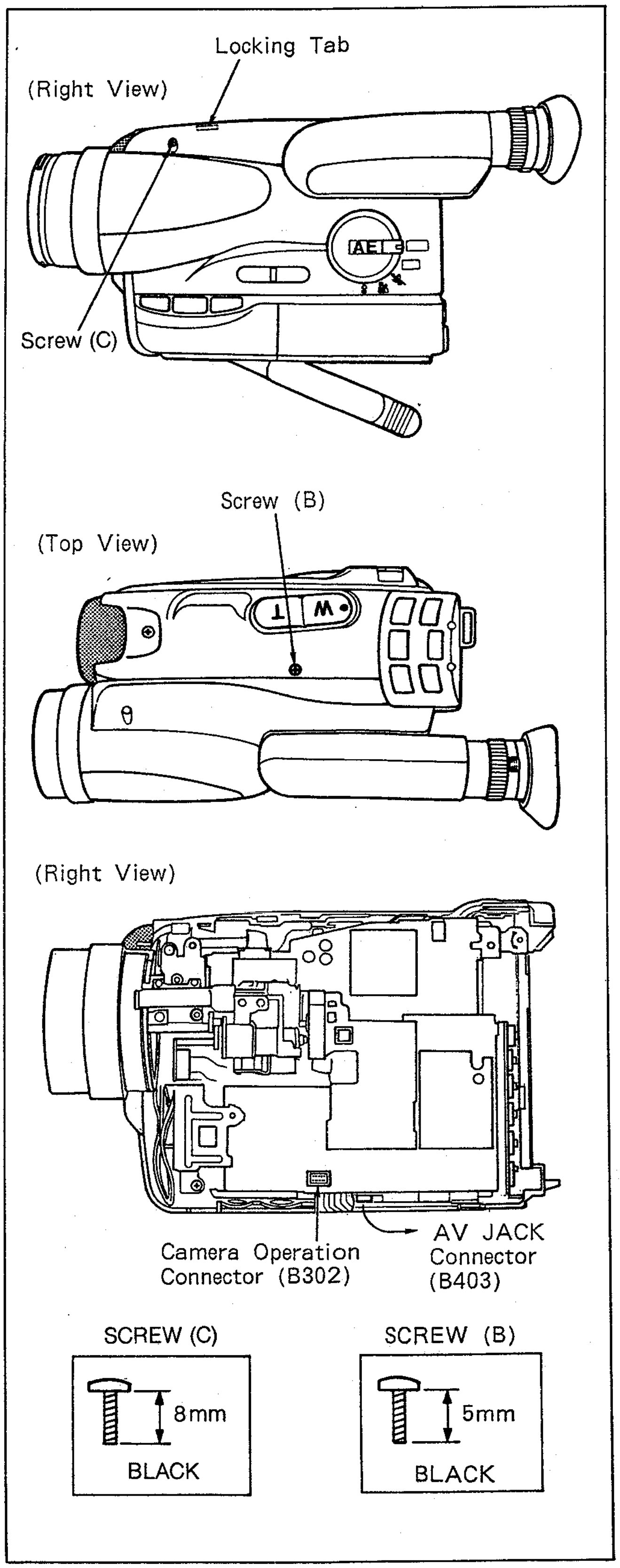

Locking Tab
(Right View)
AE
Screw (C)
Screw (B)
(Top View)
T
W
(Right View)
Camera Operation
Connector (B302)
AV JACK
Connector
(B403)
SCREW (C)
8mm
BLACK
SCREW (B)
5mm
BLACK

Fig. D2-2

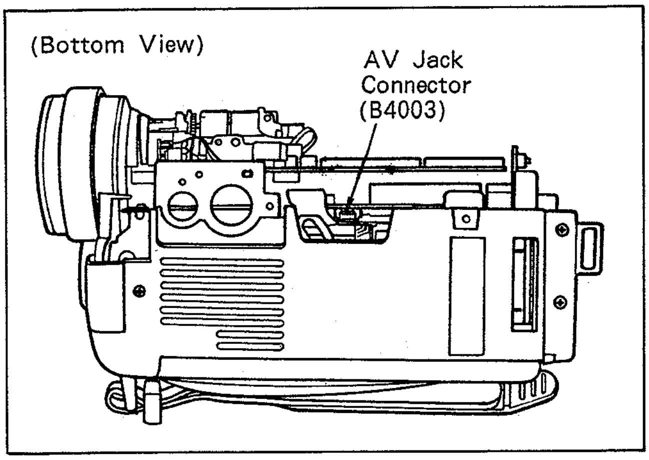

(Bottom View)
AV Jack
Connector
(B4003)

Fig. D2-3

3. Removal of Top Operation Panel

Remove.....Screw (C)
Disconnect......Connector (B6003) and P6001

Note:
When disconnect the Connector, pay attention to do not damage to the VTR Operation C.B.A.

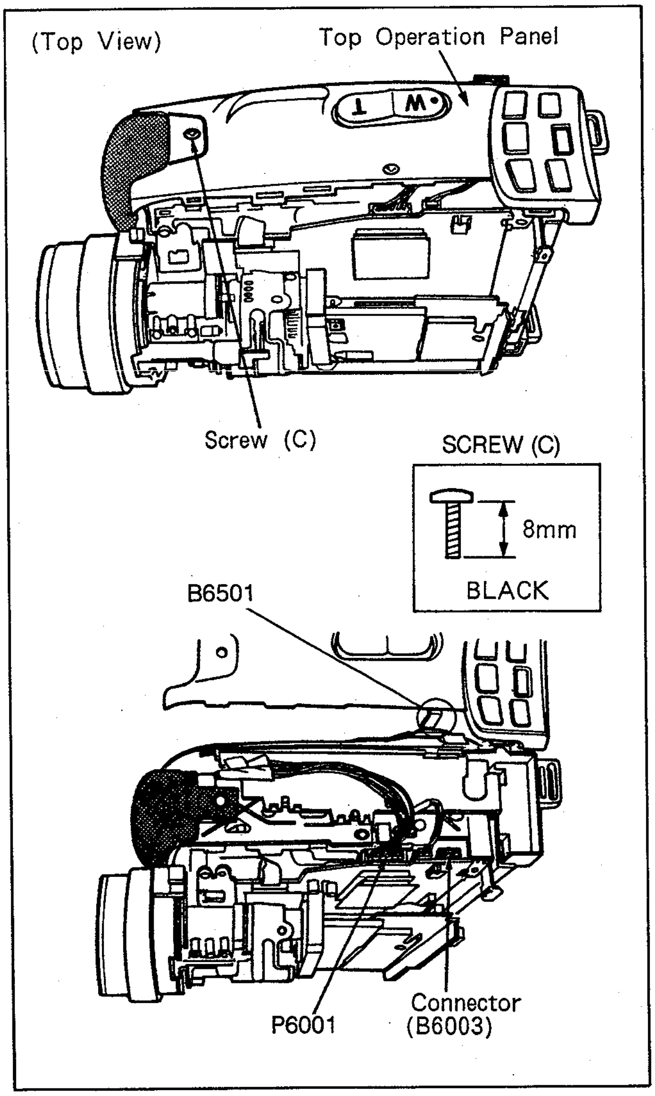

(Top View)
Top Operation Panel
W
T
Screw (C)
SCREW (C)
8mm
BLACK
B6501
P6001
Connector
(B6003)

Fig. D3

4. Removal of Side Case (L)

Remove.....5 Screws(D)
Eject to Open the Cassette Cover
Remove.....Battery Case and Lens Cap
Disconnect.....Connector(P6001)
Disconnect.....Connector(B6501)
Remove.....Top Case
Remove.....Side Case(L)

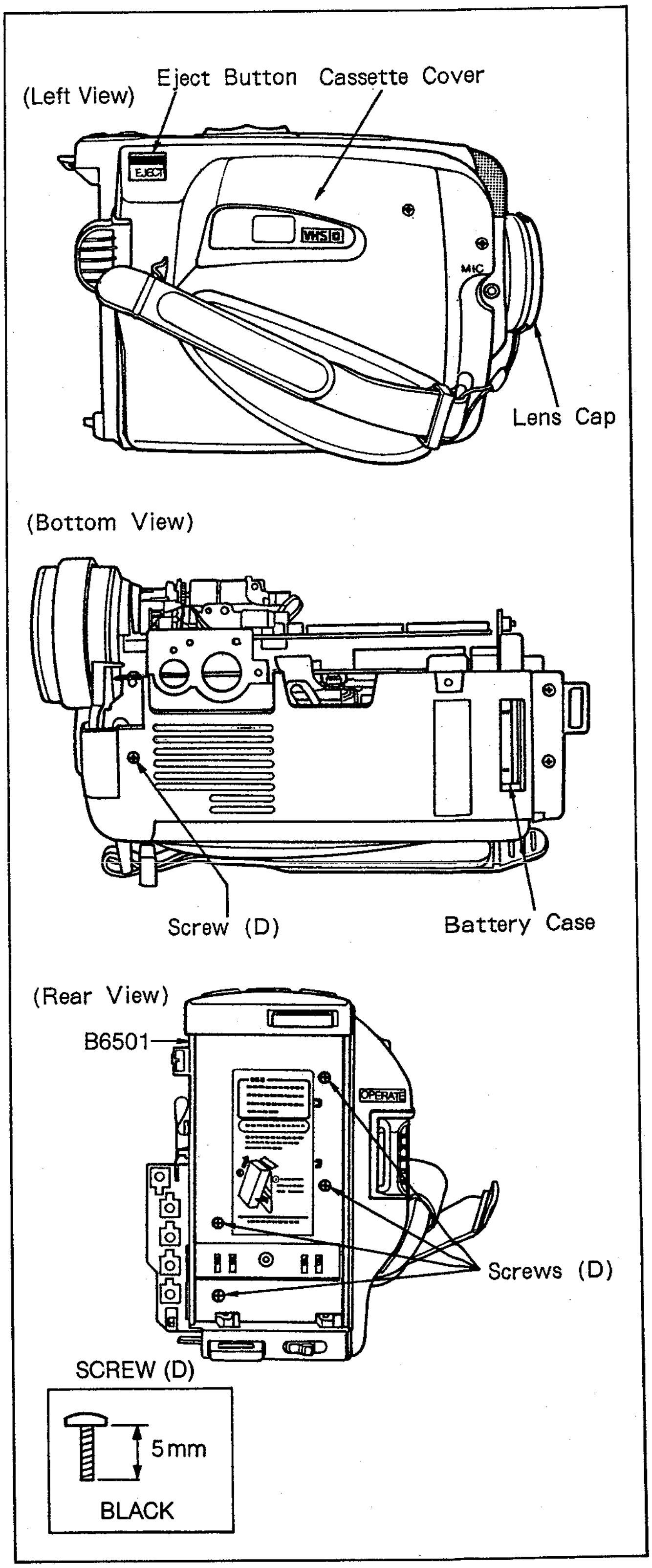

(Left View)
Eject Button
Cassette Cover
EJECT
VHS
MIC
Lens Cap
(Bottom View)
Screw (D)
Battery Case
(Rear View)
B6501
OPERATE
Screws (D)
SCREW (D)
5mm
BLACK

Fig. D4-1

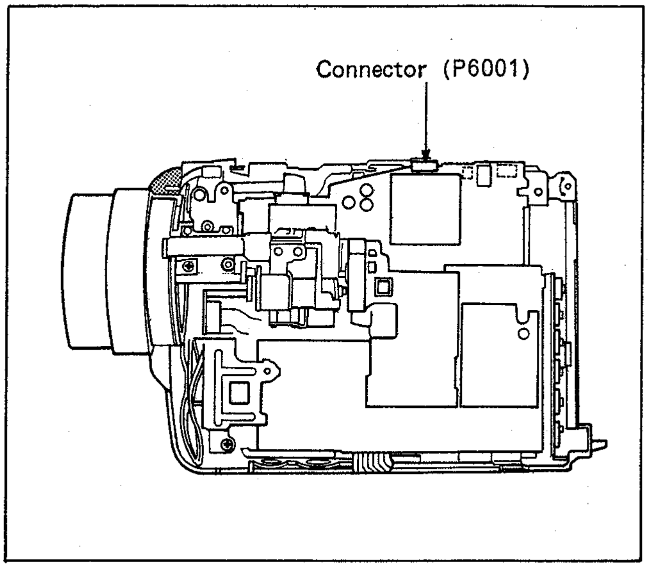

Connector (P6001)

Fig. D4-2

5. Removal of the Front Case

Remove.....Connector P4001

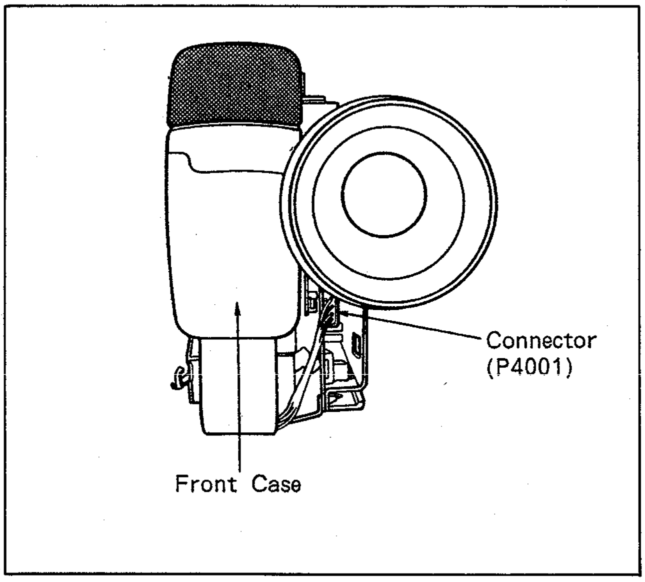

Connector
(P4001)
Front Case

Fig. D5

6. Remove of Camera Unit

Remove.....2 screws(E)
Unlock.....3 locking portions
Disconnect.....Connector(FP1002)

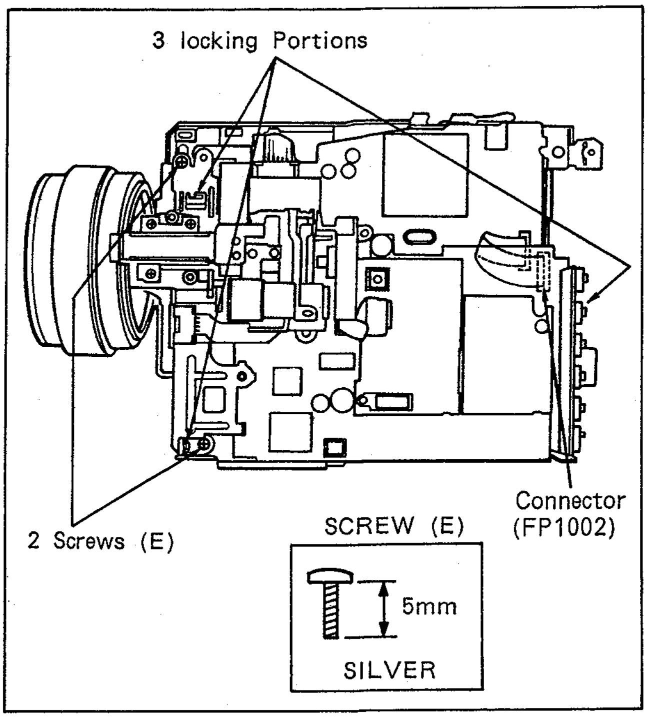

3 locking Portions
2 Screws (E)
SCREW (E)
5mm
SILVER
Connector
(FP1002)

Fig. D6

7. Removal of VTR Main C.B.A. and Jack C.B.A.

Disconnect.....Connectors (FP4002, FP6001, FP5001 and P6002)
Remove.....4 screws(F) and (G)
Disconnect.....Direct Connector (B6001)
Unlock.....locking portions

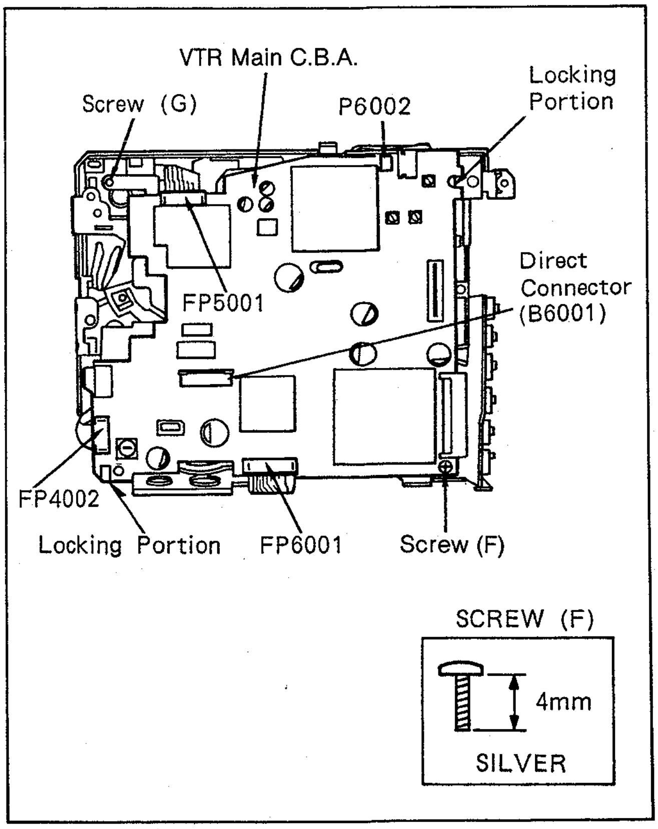

VTR Main C.B.A.
Screw (G)
P6002
Locking
Portion
FP5001
Direct
Connector
(B6001)
FP4002
Locking Portion
FP6001
Screw (F)
SCREW (F)
4mm
SILVER

Fig. D7-1

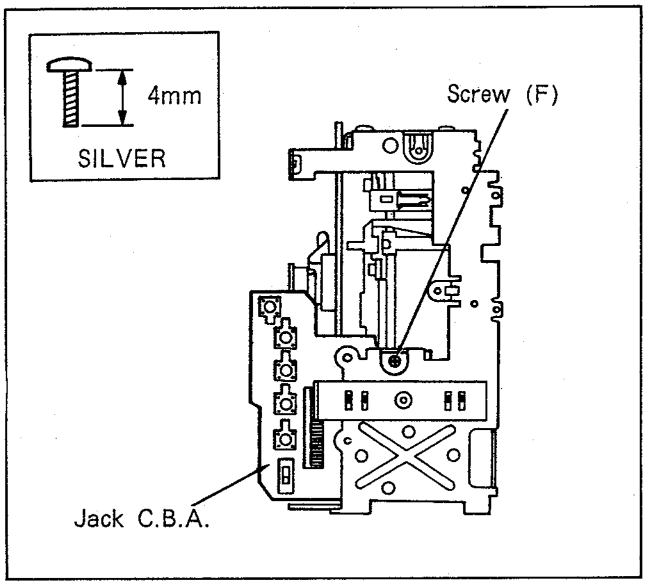

4mm
SILVER
Screw (F)
Jack C.B.A.

Fig. D7-2

8. REMOVAL OF THE MECHANISM FLEXIBLE CARD C.B.A. AND DRIVE C.B.A.

[DRIVE C.B.A.]

Remove..........3 Screws(V)
Disconnect.....2 Connectors(P2102,P2103)
Unsolder........4 Soldering Portions(W)

[MECHANISM FLEXIBLE CARD C.B.A.]

Remove......4 Screws(X)
Unsolder.....15 Soldering Portions(Y)

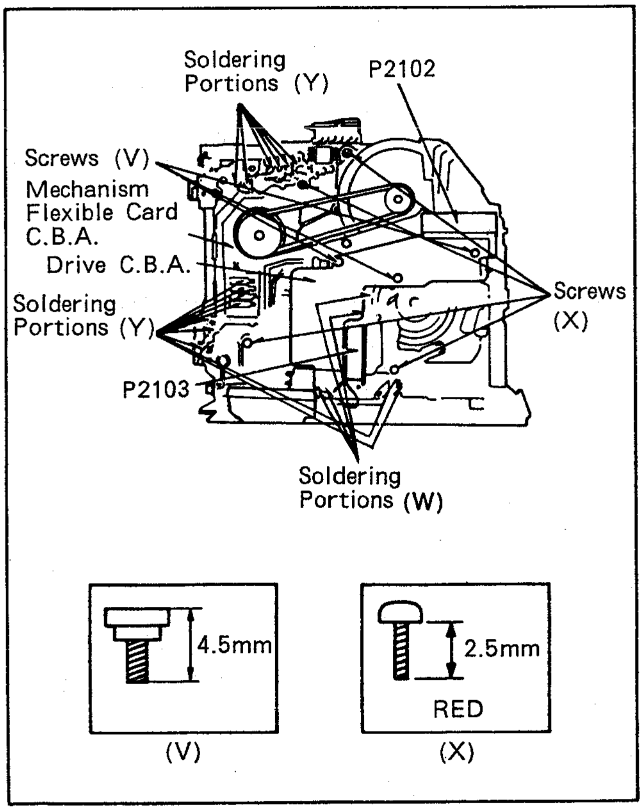

Soldering Portions (Y)
P2102
Screws (V)
Mechanism Flexible Card C.B.A.
Drive C.B.A.
Soldering Portions (Y)
Screws (X)
P2103
Soldering Portions (W)
4.5mm
2.5mm
RED
(V)
(X)

Fig. D8

2-2. REPLACEMENT OF THE CYLINDER UNIT

2-2-1. UPPER CYLINDER UNIT REPLACEMENT

Use extreme care when removing or installing the Upper Cylinder Unit. Do not touch the video heads during servicing.

1. Remove 2 screws as shown in Fig. D9.
2. Unsolder 20 solder points indicated by arrows on the Circuit Board.
3. Remove the Upper Cylinder Unit by lifting it upward.
4. Reinstall the Upper Cylinder Unit by reversing the removal procedure. When reinstalling the Upper Cylinder be careful that the white portions of the Upper Cylinder circuit board correctly matches the white portion of the bottom cylinder.

Note :

If the Upper Cylinder Unit is installed so that the white portions of the upper and if lower cylinder are reversed, no colour will appear when playing back a pre–recorded tape.

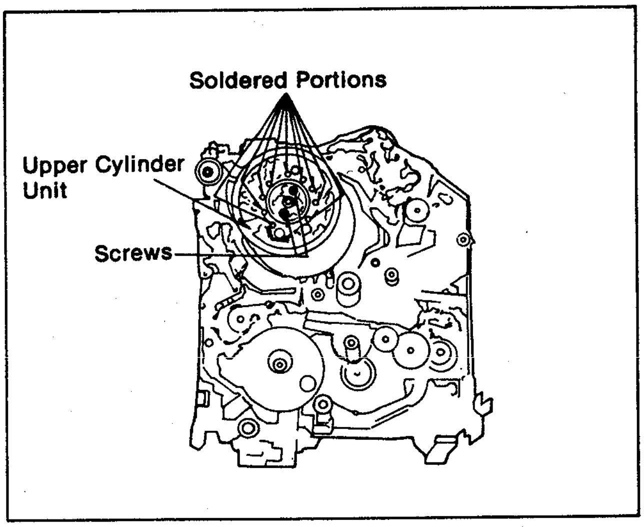


Fig. D9

2-2-2. DD CYLINDER UNIT REPLACEMENT

1. Disconnect connectors and remove the 3 screws.
2. Remove DD Cylinder.

Note:

Since there is very little clearance between the DD Cylinder and the chassis use extreme care when removing the DD Cylinder Unit. Do not touch the Video Heads while servicing.

3. Reinstall the DD Cylinder Unit, install 3 screws and reconnect the connectors.

Note:

After installing the DD Cylinder Unit:
1) Gently rub the video heads in the direction of tape travel with a head cleaning stick.
2) Check DD Cylinder performance. If further maintenance is required see "Tape Interchangeability Adjustment"

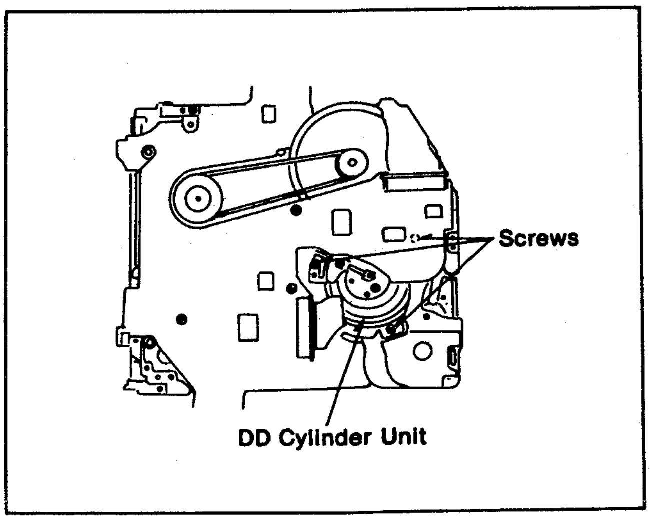
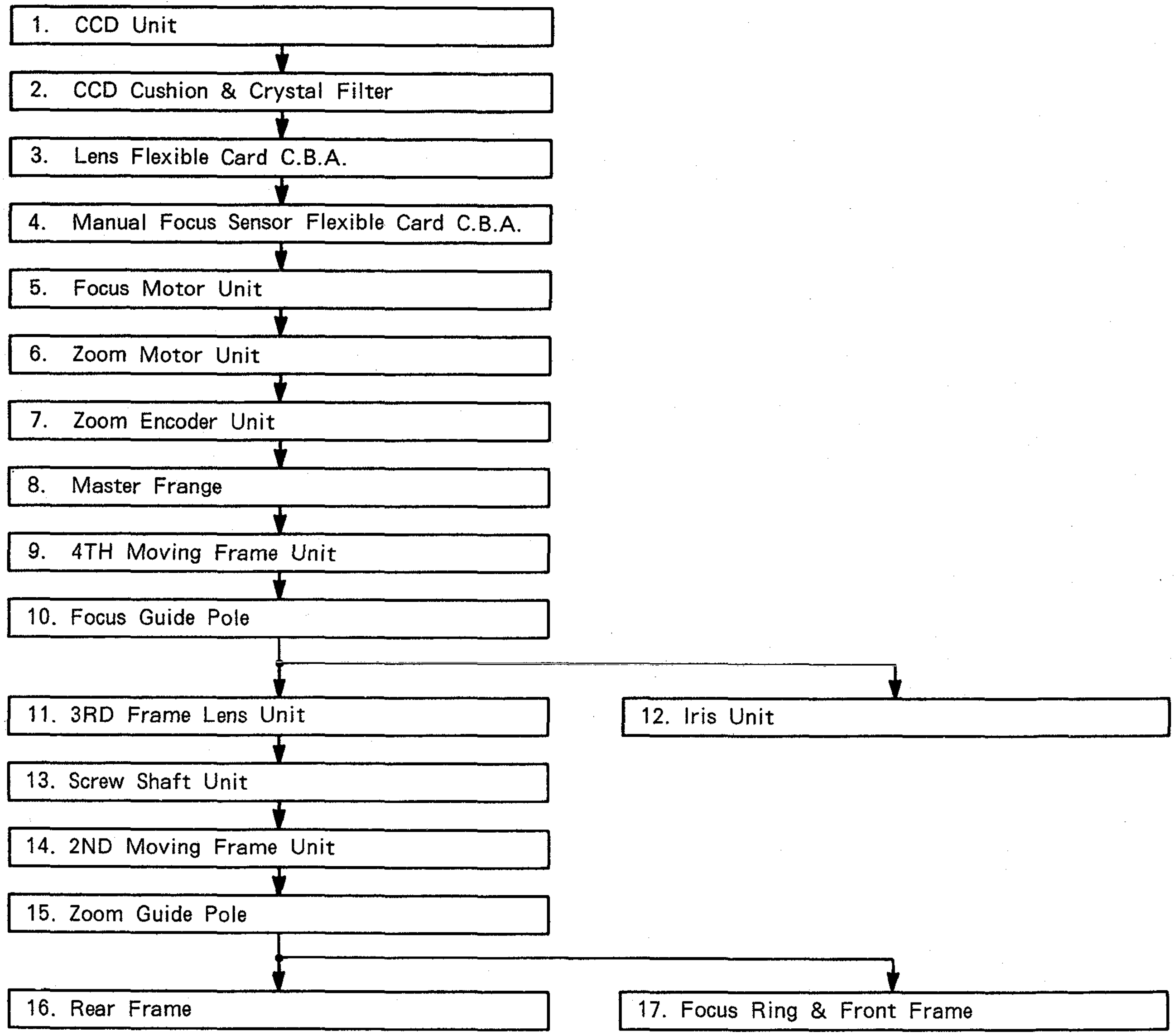


Fig. D10

2-3. DISASSEMBLY PROCEDURES OF ZOOM MOTOR AND FOCUS MOTOR

The following flowchart describes order or steps for removing the Lens Units and certain Printed Circuit Boards in order to make access to the items needing service.
To reassemble the unit follow the steps in reverse order.


1. CCD Unit
2. CCD Cushion & Crystal Filter
3. Lens Flexible Card C.B.A.
4. Manual Focus Sensor Flexible Card C.B.A.
5. Focus Motor Unit
6. Zoom Motor Unit
7. Zoom Encoder Unit
8. Master Frange
9. 4TH Moving Frame Unit
10. Focus Guide Pole
11. 3RD Frame Lens Unit
12. Iris Unit
13. Screw Shaft Unit
14. 2ND Moving Frame Unit
15. Zoom Guide Pole
16. Rear Frame
17. Focus Ring & Front Frame

Note:
Each Item numbers are equivalent to numbers on Fig.L2.

Fig. L1

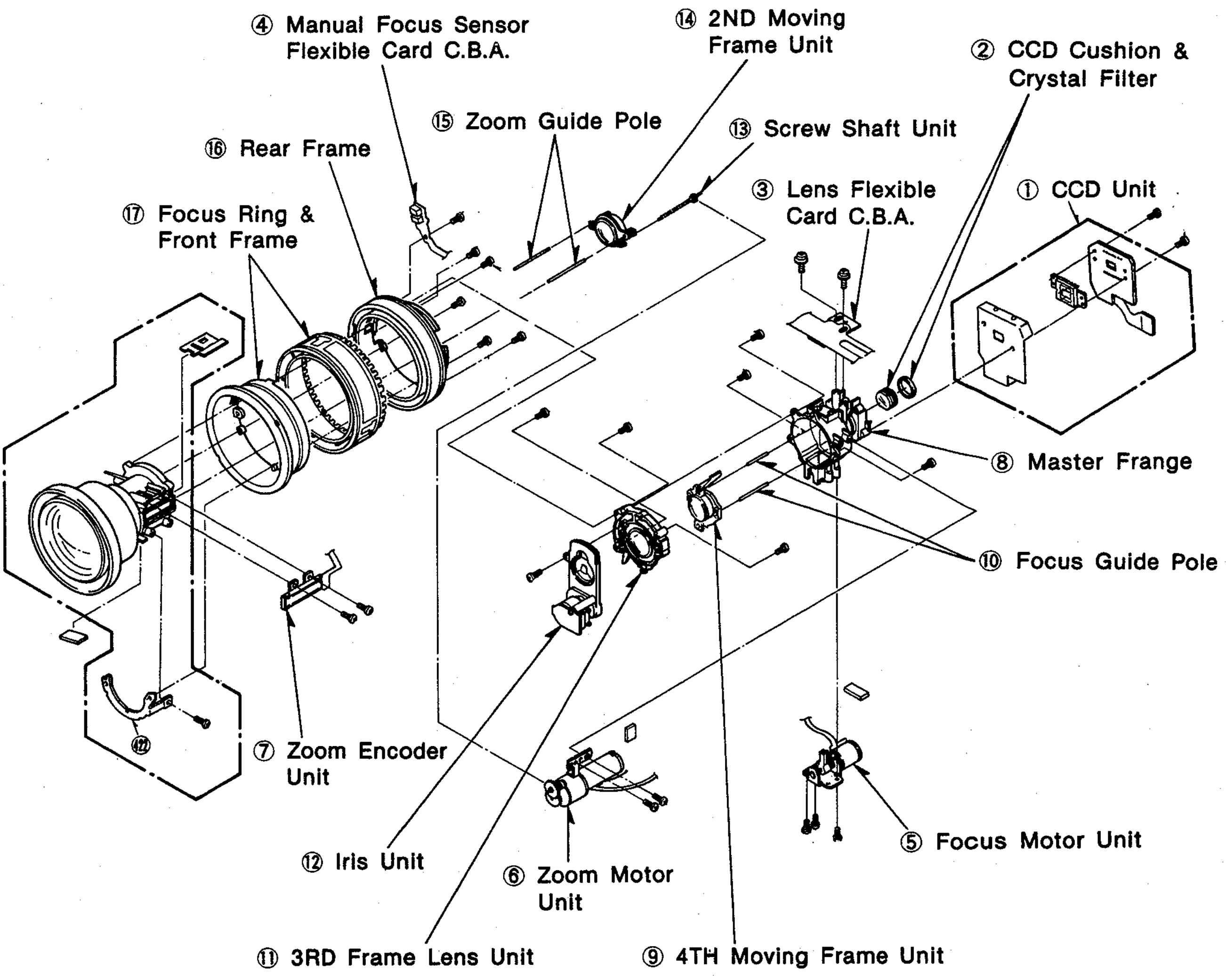

④ Manual Focus Sensor Flexible Card C.B.A.
⑭ 2ND Moving Frame Unit
② CCD Cushion & Crystal Filter
⑮ Zoom Guide Pole
⑬ Screw Shaft Unit
⑯ Rear Frame
③ Lens Flexible Card C.B.A.
① CCD Unit
⑰ Focus Ring & Front Frame
⑧ Master Frange
⑩ Focus Guide Pole
㊷
⑦ Zoom Encoder Unit
⑤ Focus Motor Unit
⑫ Iris Unit
⑥ Zoom Motor Unit
⑪ 3RD Frame Lens Unit
⑨ 4TH Moving Frame Unit

Fig. L2

2-4. ASSEMBLY ADJUSTMENT PROCEDURES OF MECHANISM

The mechanism of this model is mostly engaged to the system control circuit,through the mode select switch.
Therefore the relation between the mode select switch and cam gear decides all further mechanical movement of the mechanical parts such as levers,gears,rollers and so on. If these parts are fixed improperly,the units will be unloaded or compulsory stopped.
And it will result being damaged at any mechanical or electrical parts.

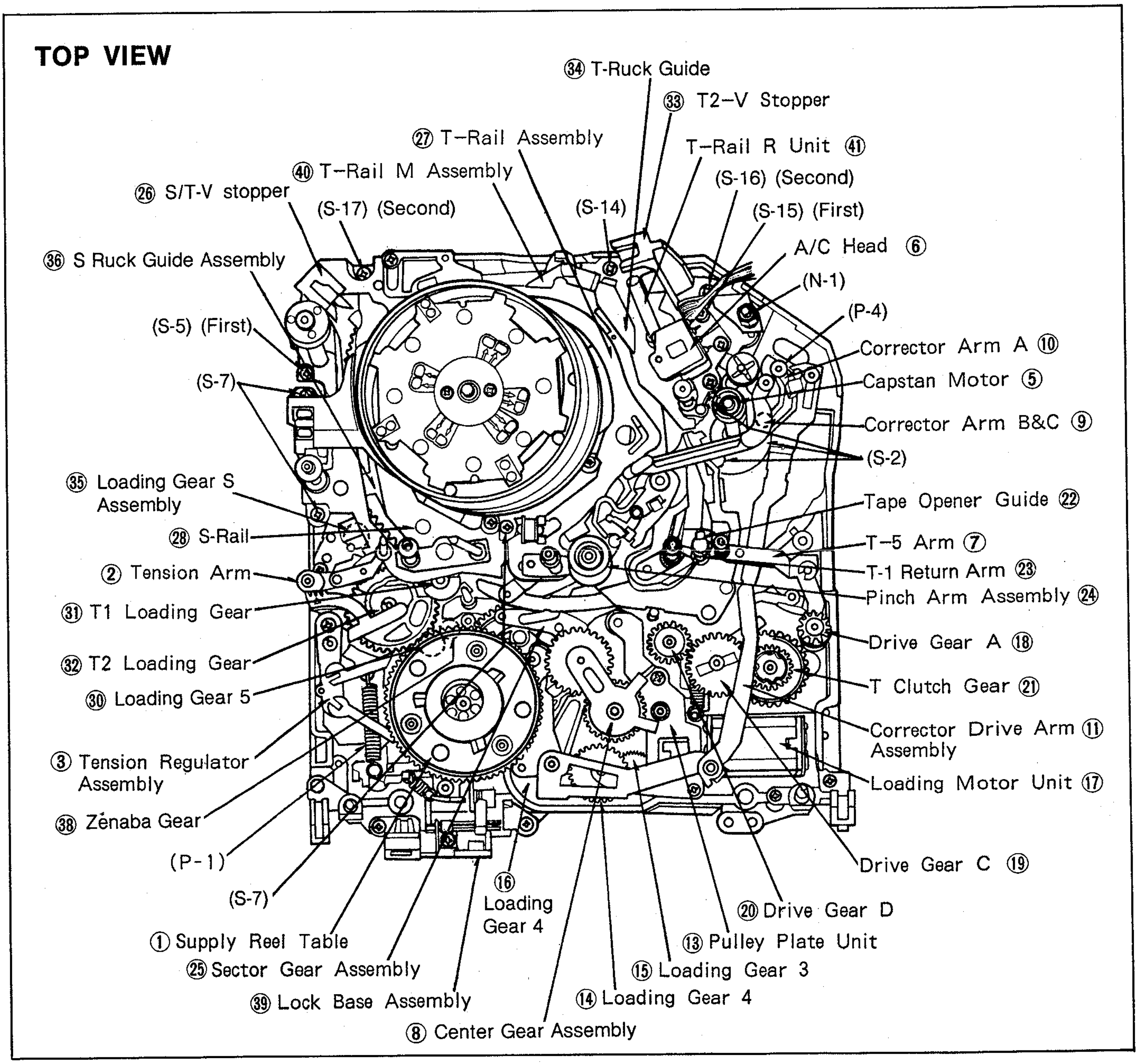

TOP VIEW
㉞ T-Ruck Guide
㉝ T2–V Stopper
㉗ T–Rail Assembly
T–Rail R Unit ㊶
㊵ T–Rail M Assembly
(S-16) (Second)
㉖ S/T-V stopper
(S-17) (Second)
(S-14)
(S-15) (First)
A/C Head ⑥
㊱ S Ruck Guide Assembly
(N-1)
(P-4)
(S-5) (First)
Corrector Arm A ⑩
(S-7)
Capstan Motor ⑤
Corrector Arm B&C ⑨
(S-2)
㉟ Loading Gear S Assembly
Tape Opener Guide ㉒
㉘ S-Rail
T–5 Arm ⑦
② Tension Arm
T-1 Return Arm ㉓
㉛ T1 Loading Gear
Pinch Arm Assembly ㉔
Drive Gear A ⑱
㉜ T2 Loading Gear
T Clutch Gear ㉑
㉚ Loading Gear 5
Corrector Drive Arm ⑪ Assembly
③ Tension Regulator Assembly
Loading Motor Unit ⑰
㊳ Zēnaba Gear
(P-1)
Drive Gear C ⑲
(S-7)
⑯ Loading Gear 4
⑳ Drive Gear D
① Supply Reel Table
⑬ Pulley Plate Unit
㉕ Sector Gear Assembly
⑮ Loading Gear 3
㊴ Lock Base Assembly
⑭ Loading Gear 4
⑧ Center Gear Assembly

Fig. M1

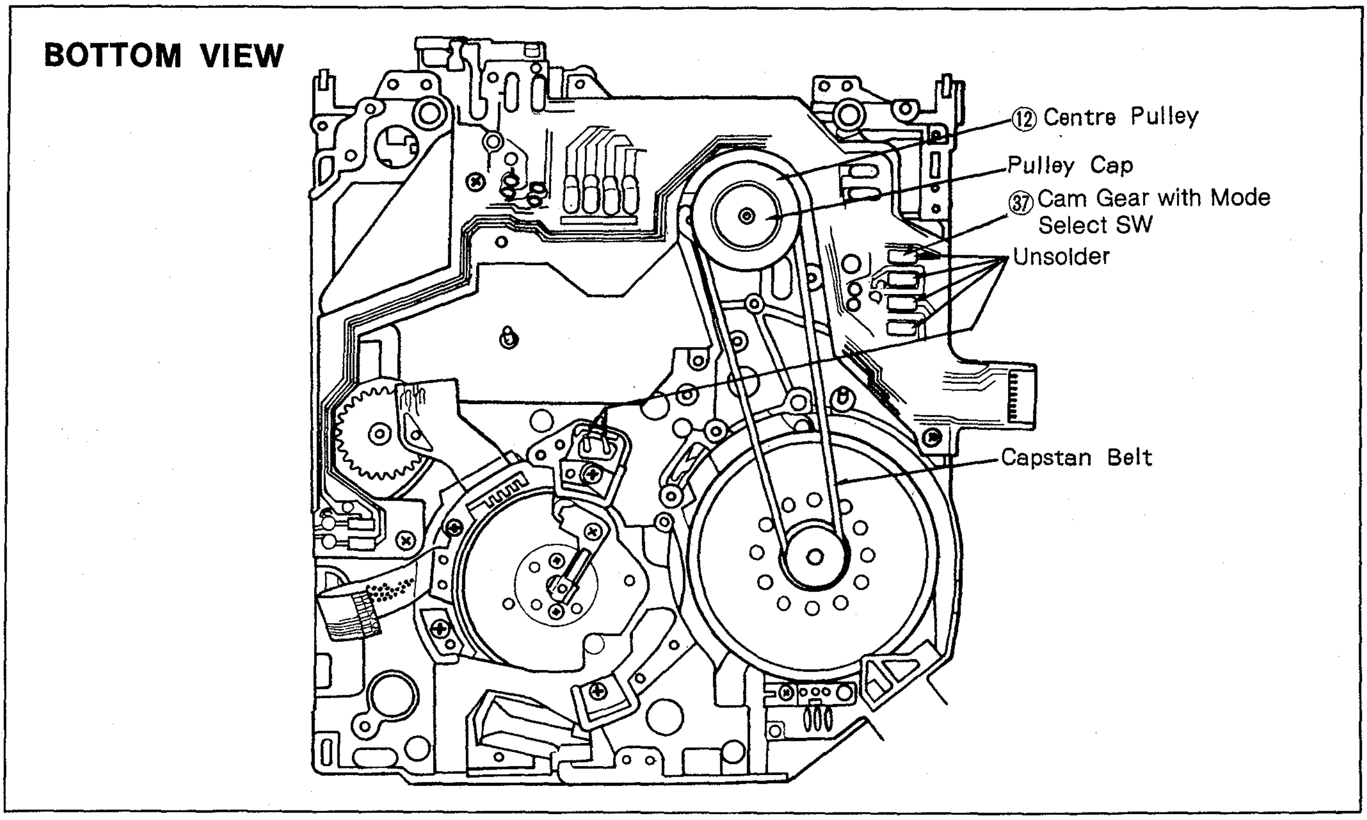

BOTTOM VIEW
⑫ Centre Pulley
Pulley Cap
㊲ Cam Gear with Mode Select SW
Unsolder
Capstan Belt

Fig. M2

2-4-1 Disassembly of Mechanism

Prior to disassembly of the mechanism remove the Mechanism Flexible Card CBA and Drive CBA [13] of [2–2–1] and DD Cylinder [2–2–2].

Note:
To prevent accidental damage to the DD Cylinder, removal of the DD Cylinder is recommended before complete or partial disassembly of mechanism.

1) Remove 2 red screws and lift the cassette holder assembly off of the mechanism assembly.
2) Remove the supply reel table C–ring and supply reel table. See Fig. M3.

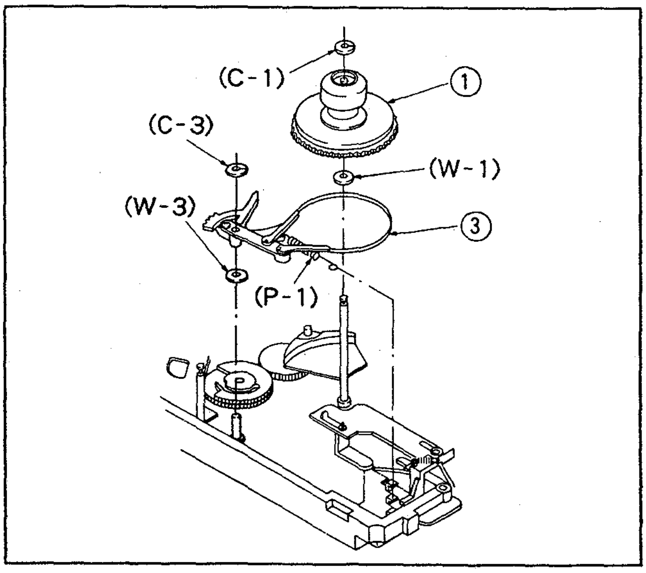

(C-1)
①
(C-3)
(W-1)
(W-3)
③
(P-1)

Fig. M3

3) Remove a C-ring and Tension Arm Assembly.

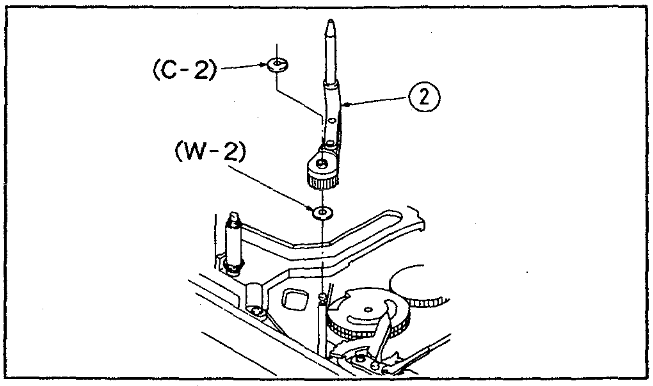


Fig. M4

4) Remove tension regulator assembly.
5) Remove tension regulator band from tension regulator assembly.
6) Remove T–5 arm unit. See Fig M5

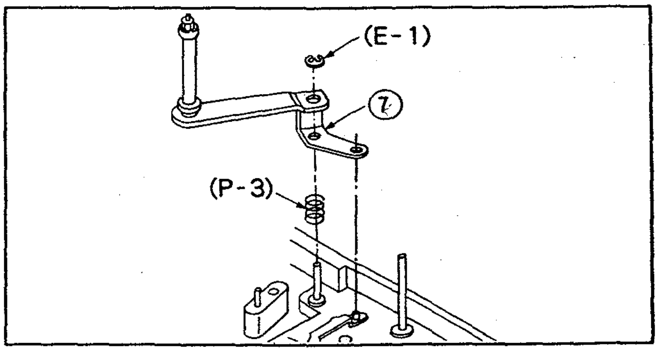


Fig. M5

7) Place corrector arm spring in initial hook position. See Fig. M6–A. Remove corrector arm C and B. See Fig. M6

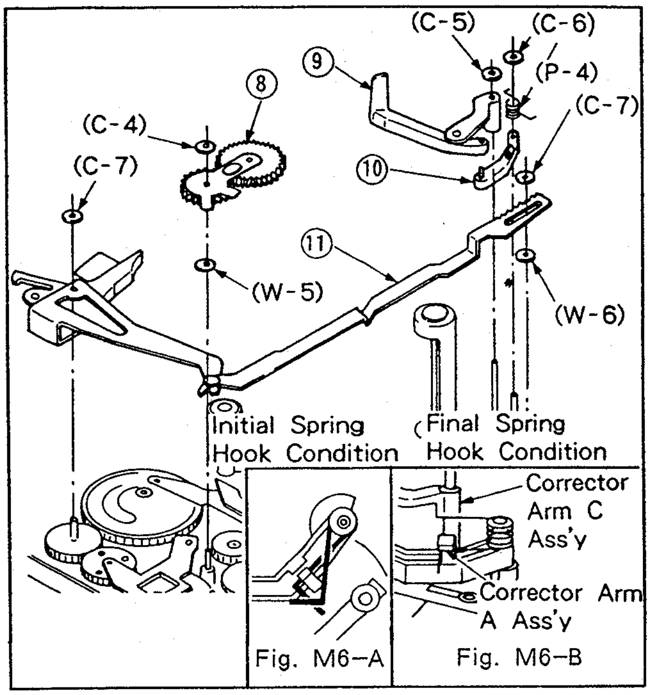

(C-5)
(C-6)
⑨
(P-4)
⑧
(C-7)
(C-4)
(C-7)
⑩
⑪
(W-5)
(W-6)
Initial Spring Hook Condition
Final Spring Hook Condition
Corrector Arm C Ass'y
Corrector Arm A Ass'y

Fig. M6–A

Fig. M6–B

Fig. M6

8) Remove corrector arm A and spring.
9) Remove corrector drive arm assembly.
10) Remove centre gear assembly. See Fig. M1 & 7.

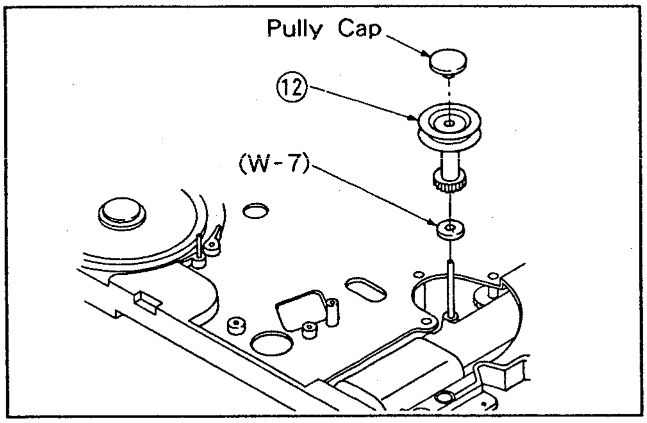

Pully Cap
⑫
(W-7)

Fig. M7

12) Remove pulley cap and centre pulley.
13) Remove pulley plate unit. See Fig. M8.

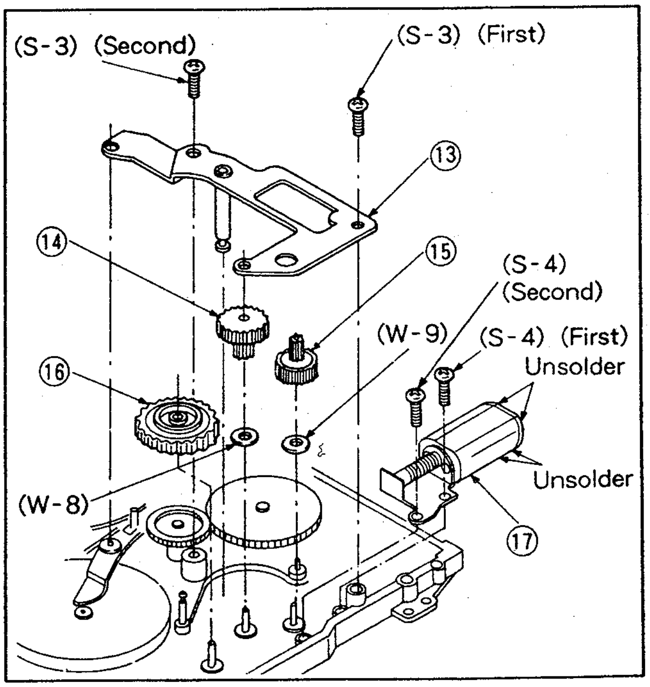

(S-3) (Second)
(S-3) (First)
⑬
⑭
⑮
(S-4) (Second)
(W-9)
(S-4) (First)
Unsolder
⑯
Unsolder
(W-8)
⑰

Fig. M8

14) Remove loading gear 3.
15) Remove loading gear 2.
16) Remove loading gear 4.
17) Remove loading gear motor unit.
18) Rotate the main cam gear clockwise to the fully loaded position then rotate counter–clockwise 90 degrees.
19) Remove the tape opener guide. See Fig. M9

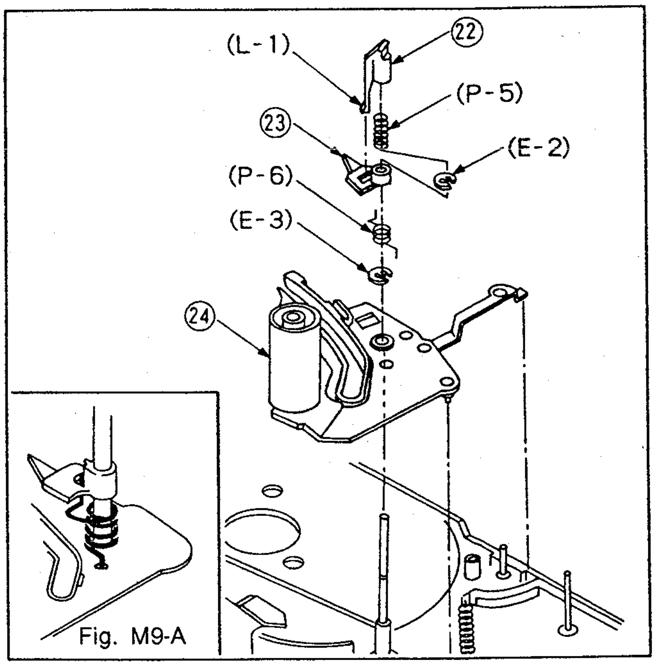

(L-1)
㉒
(P-5)
㉓
(E-2)
(P-6)
(E-3)
㉔

Fig. M9-A

Fig. M9

20) Remove E–ring, T–1 return arm and spring.
21) Remove E–ring and pinch arm unit.
22) Remove drive gear A. See Fig. 10
23) Remove drive gear D.
24) Remove drive gear C.
25) Remove T–clutch gear assembly.
26) Remove sector gear assembly. See Fig M11
27) Rotate cam gear counter clockwise until T–post is partially unloaded to remove S/T–V stopper unit.
28) Remove S/T–V stopper unit. See fig M1
29) Remove S–rail.
30) Remove T–rail. See fig. M12.
31) Remove band guide. See fig. M13
32) Remove loading gear 5.
33) Remove T–1 loading gear.
34) Remove T–2 loading gear unit.

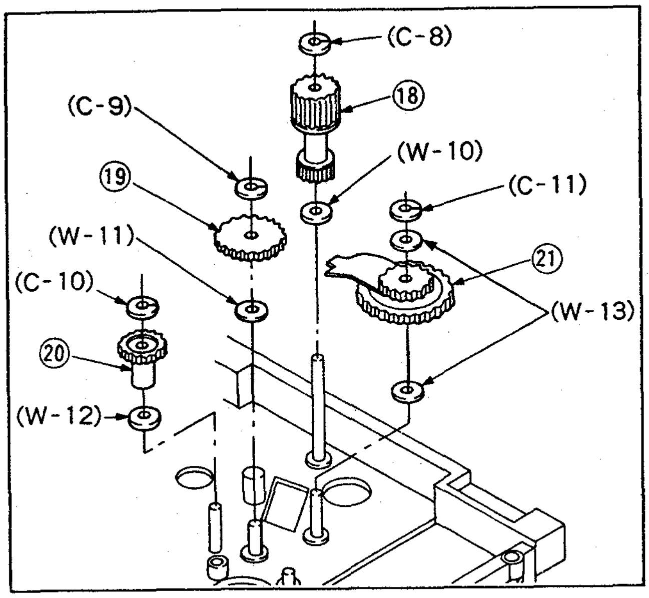

(C-8)
⑱
(C-9)
(W-10)
⑲
(C-11)
(W-11)
㉑
(C-10)
(W-13)
⑳
(W-12)

Fig. M10

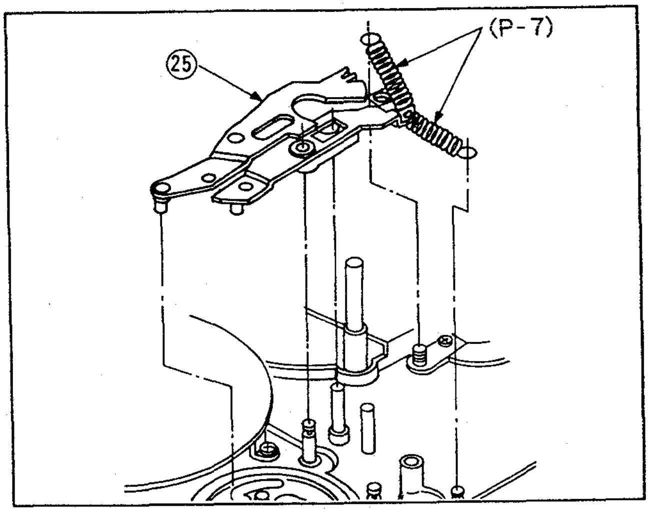


Fig. M11

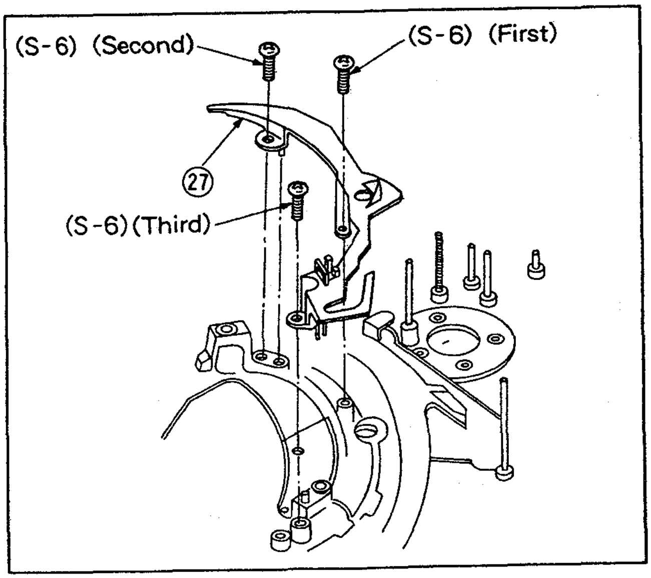

(S-6) (Second)
(S-6) (First)
㉗
(S-6)(Third)

Fig. M12

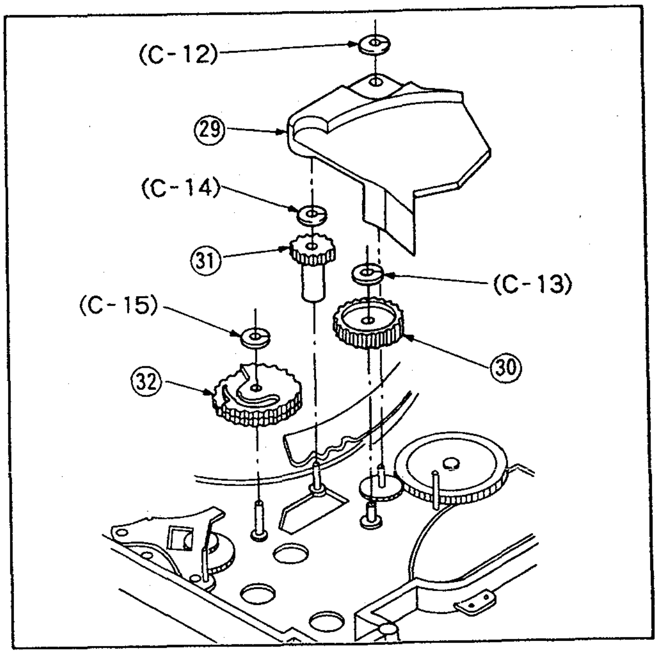

(C-12)
㉙
(C-14)
㉛
(C-13)
(C-15)
㉚
㉜

Fig. M13

36) Remove capstan drive motor. See fig. M1.
37) Remove T-rail R unit. See Fig. M15.
38) Remove T rack guide unit. See Fig. M16.
39) Remove loading gear S assembly. See Fig. M17.
40) Remove S rack guide assembly. See fig. M18.
41) Remove cam gear/mode select switch assembly. See fig. M19.
42) Remove zenaba gear.
43) Remove the lock base assembly. See Fig. M20.
44) Remove T-rail M assembly. See fig. M1.
45) Remove T2-V stopper.

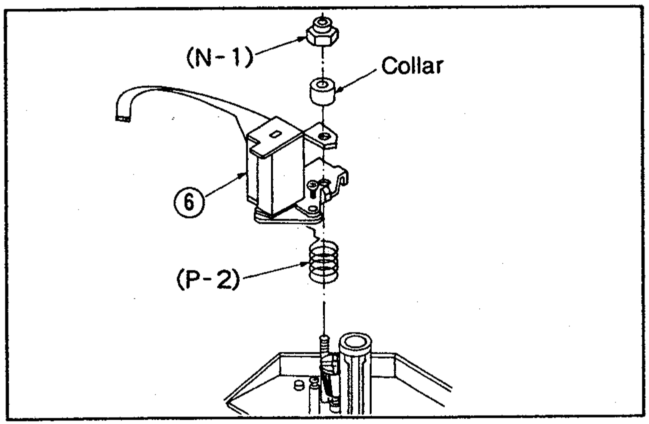

(N-1)
Collar
⑥
(P-2)

Fig. M14

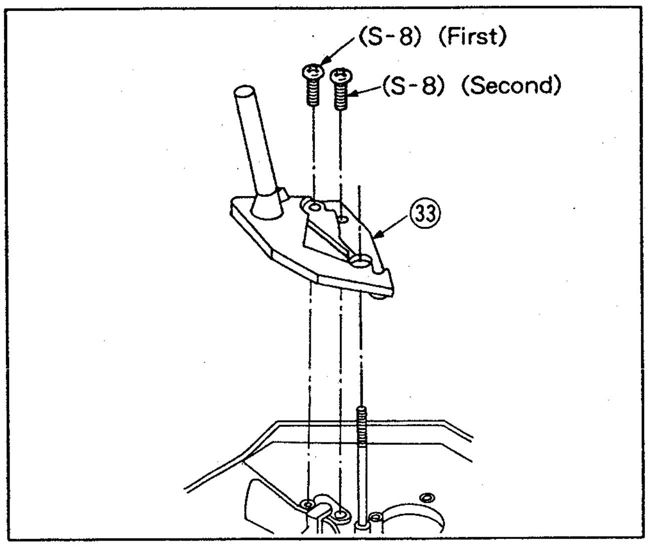

(S-8) (First)
(S-8) (Second)
㉝

Fig. M15

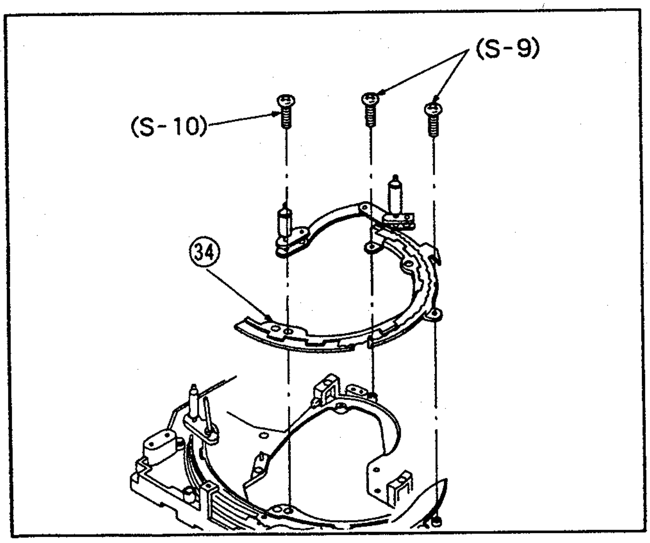


Fig. M16

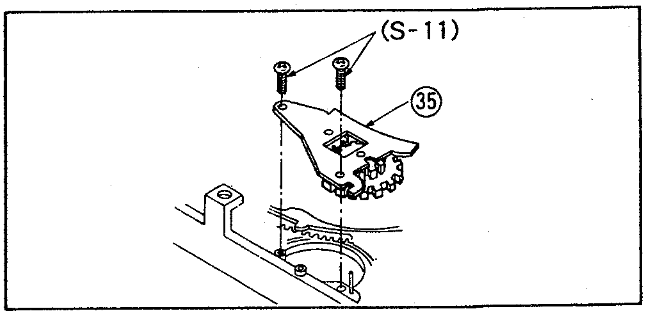


Fig. M17

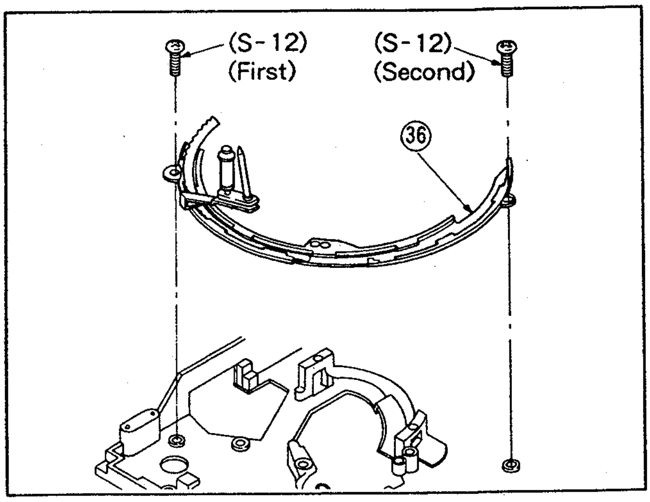

(S-12) (First)
(S-12) (Second)
㊱

Fig. M18

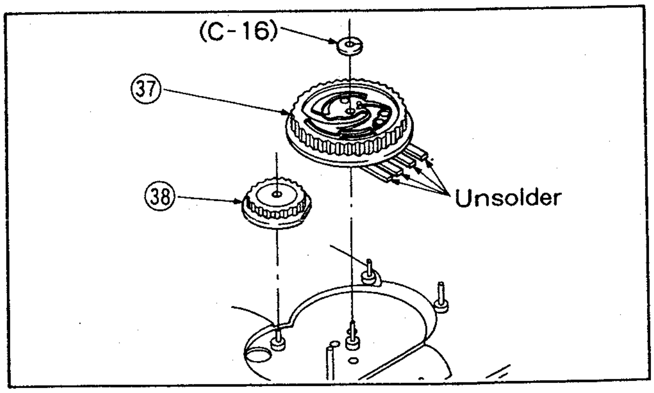

(C-16)
㊲
㊳
Unsolder

Fig. M19

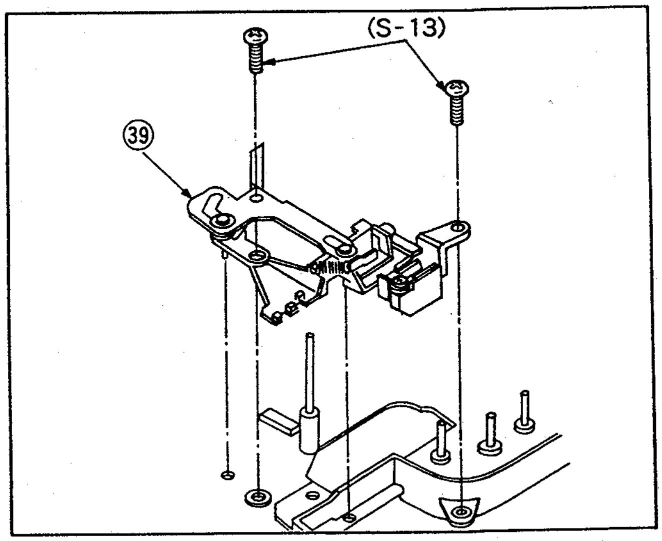


Fig. M20

2-4-2 Assembly of Mechanism

Note:
Alignment procedures in this section are critical.

Note:
All C–rings and E–rings should be replaced not re–used.

1) Reinstall T2–V stopper. Tighten screws as shown in fig M1.
2) Reinstall T–rail M assembly.
3) Reinstall lock base assembly. See fig. M20.
4) Reinstall cam gear/mode select switch. See fig.M19. Position the V–punch mark on the cam gear as shown in fig. A1.

Note:
If the eject lever prevents the cam gear from seating properly, rotate the cam gear until it seats then position the V–punch mark.

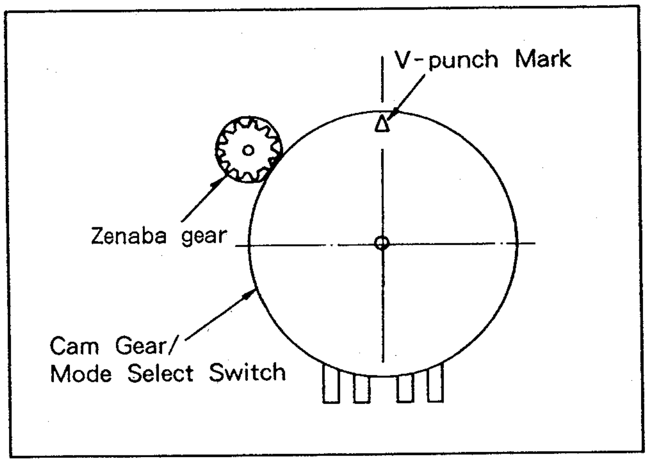

V-punch Mark
Zenaba gear
Cam Gear/
Mode Select Switch

Fig. A1

5) Reinstall the zenaba gear so that the cut out of the zenaba gear is positioned towards the cam gear.
6) Reinstall the S rack assembly. See Fig. M18.
7) Reinstall the loading gear S assembly. See Fig.M17. See Fig. A3 for alignment procedure.

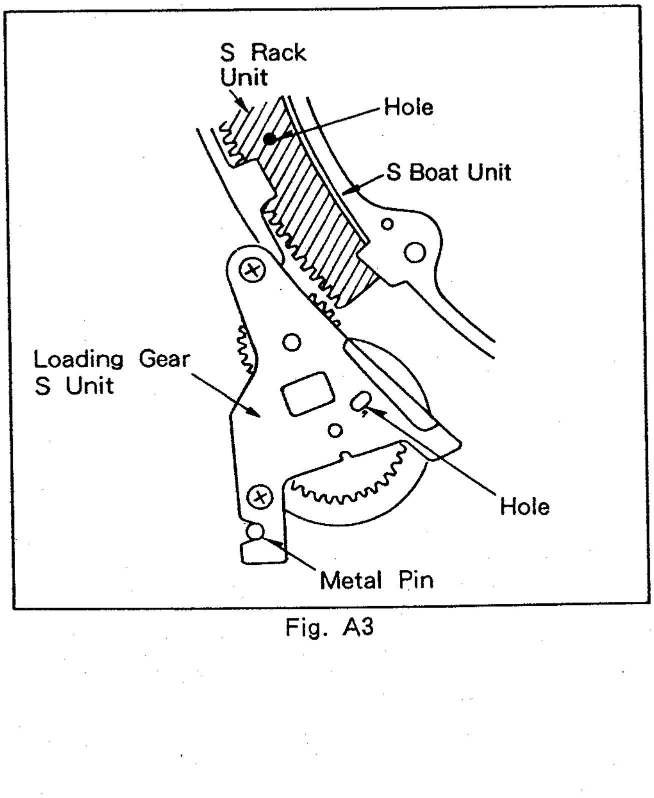

S Rack
Unit
Hole
S Boat Unit
Loading Gear
S Unit
Hole
Metal Pin

Fig. A3

8) Reinstall T rack guide assembly. See Fig. M16.
9) Reinstall T rail R Unit. Tighten screws as shown in Fig. DM15.
10) Check loading gear S assembly alignment as shown in Fig. A3. reinstall T2 loading gear. See Fig.M13. See Fig. A4 for alignment procedure.
11) Reinstall T1 loading gear aligning the small indentation on the T1 gear with the timing mark on the T rack guide unit. See Fig. A4.

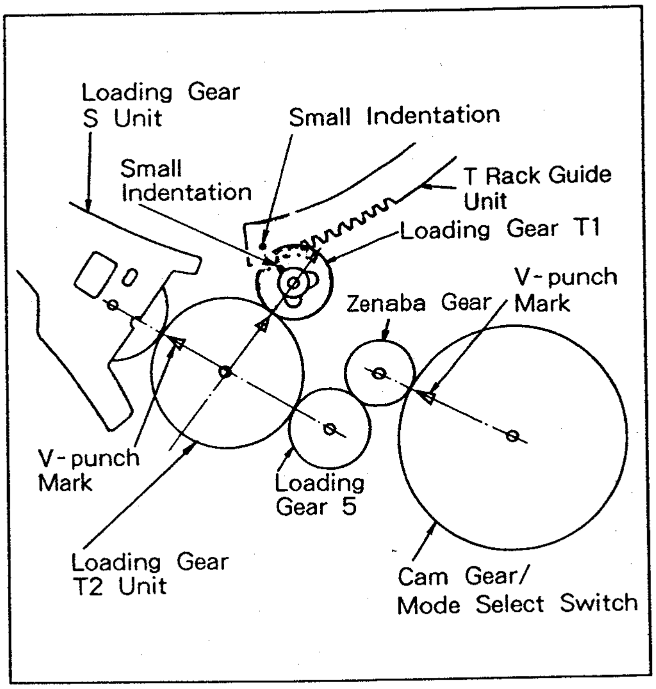

Loading Gear
S Unit
Small Indentation
Small
Indentation
T Rack Guide
Unit
Loading Gear T1
V-punch
Mark
Zenaba Gear
V-punch
Mark
Loading
Gear 5
Loading Gear
T2 Unit
Cam Gear/
Mode Select Switch

Fig. A4

12) Align V–punch mark on the cam gear with the shaft of the zenaba gear. See Fig. A2. Reinstall loading gear 5 with the flat side down.

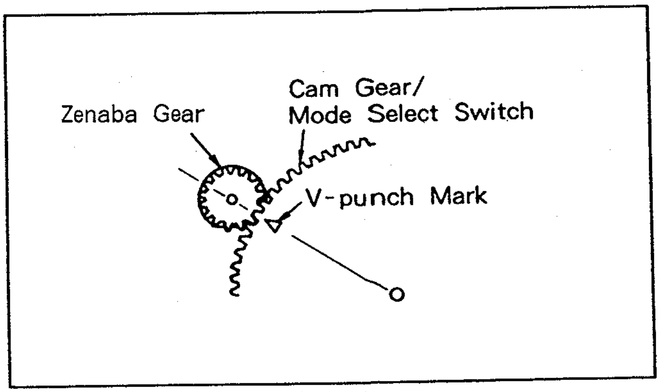

Zenaba Gear
Cam Gear/
Mode Select Switch
V-punch Mark

Fig. A2

13) Reinstall the band guide.
14) Reinstall the S rail unit. See Fig. M1.
15) Reinstall the T rail unit. Tighten the screws in the order shown in Fig. M12.
16) Rotate the cam gear counter clockwise to move the post to the fully loaded position.
17) Reinstall S/T–V stopper unit. Tighten screws in the order shown in Fig. M1.
18) Reinstall sector gear assembly. Install the pin on the sector gear assembly into the outer slot of the cam gear. See Fig. M11.
19) Rotate the cam gear clockwise to the fully loaded position then rotate the cam gear back 90 degrees.
20) Reinstall the pinch arm assembly. Install the E–ring. See fig.M9 & A 5.

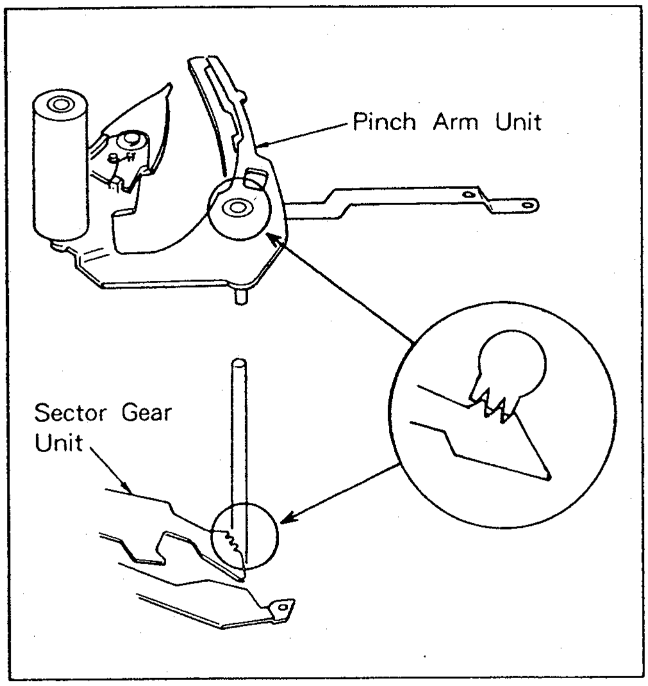


Fig. A5

21) Reinstall T1 return arm spring and T1 return arm. Install the E–ring. See Fig.M9–A.
22) Reinstall the tape opener guide.
23) Reinstall the T clutch gear unit. See Fig.M10.
24) Reinstall drive gear D.
25) Reinstall drive gear C with the flat side up.
26) Reinstall drive gear A.
27) Reinstall loading motor unit. Tighten the screws in the order shown in Fig.M8.
28) Reinstall the drive gear 2.
29) Reinstall drive gear 4 with the flat side down.
30) Reinstall the drive gear 3.
31) Reinstall the pulley plate unit. Tighten the screws in the order shown in Fig.M8.
32) Reinstall the centre pulley and centre pulley cap. See fig.M7.
33) Reinstall the corrector drive arm assembly. Place the corrector drive arm pin in the outer slot of the cam gear.
34) Reinstall the spring on corrector arm A as shown in Fig.DM6–A.
35) Reinstall corrector arm A so that the first tooth on the corrector arm engages the first groove of the corrector drive arm. See fig.A6.

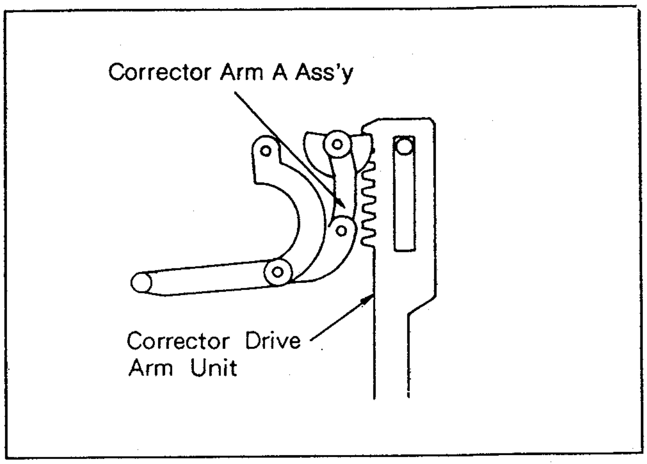


Fig. A6

36) Reinstall corrector arm C.
37) Reposition the spring on corrector arm A as shown in Fig. M6–B.
38) Reinstall the centre gear assembly.
39) Reinstall the T5 arm. See Fig. M5.
40) Reinstall the capstan motor unit. See Fig. M1.
41) Reinstall the A/C head. See Fig. M14. Position the spring as shown in Fig. M7.

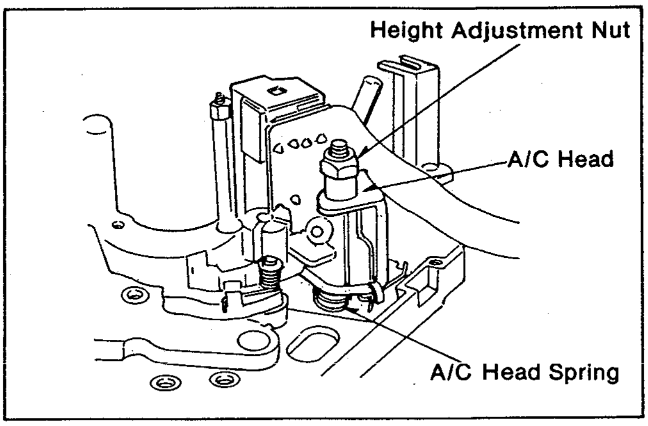


Fig. A7

42) Reinstall the capstan belt. See Fig.M2.
43) Reinstall the tension regulator band on the tension regulator assembly. See Fig. M3.
44) Reinstall the tension regulator assembly. Place the tension regulator assembly pin into the slot of T2 loading gear unit.
45) Reinstall the tension arm so that the U–notch on the tension arm unit aligns with the V–punch mark on the tension regulator assembly. See Fig. A8.

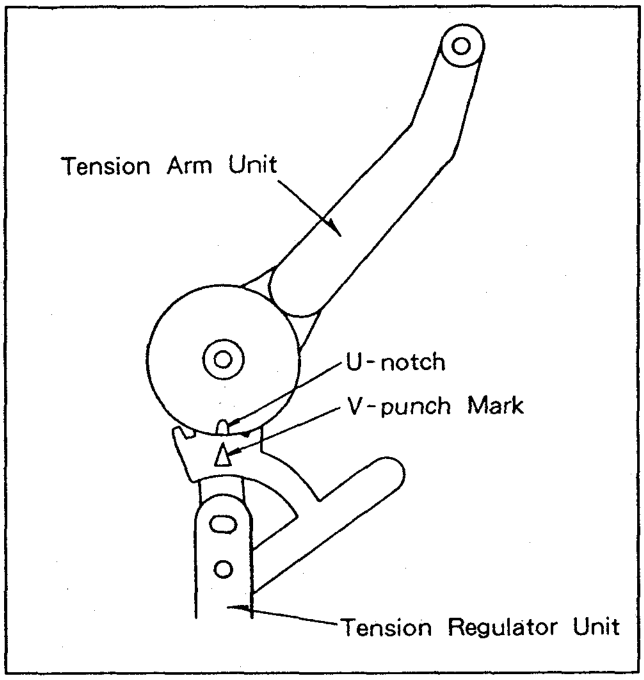

Tension Arm Unit
U-notch
V-punch Mark
Tension Regulator Unit

Fig. A8

46) Clean the rotating surface of the supply reel table with a soft dry cloth.
47) Reinstall the supply reel table.

Reinstall the DD Cylinder. See 2–2–2.

Reinstall the Mechanism Flexible Card CBA and Drive C.B.A.

2-5. INTERCHANGEABILITY ADJUSTMENT

2-5-1. ADJUSTMENT OF BACK TENSION

*Equipment Required.
Tension meter
Alignment tape 4822 397 30186
Specification 17+–2g.

(1) Remove the Impedance Roller.
(2) Insert the cassette tape and playback the tape.
(3) Insert the Tension Meter to Mechanism as shown Fig.T1.

If Back tension is high, spring position change to (a) position as shown in Fig.T2.
If Back tension is low, spring position change to (c) position as shown in Fig.T2.

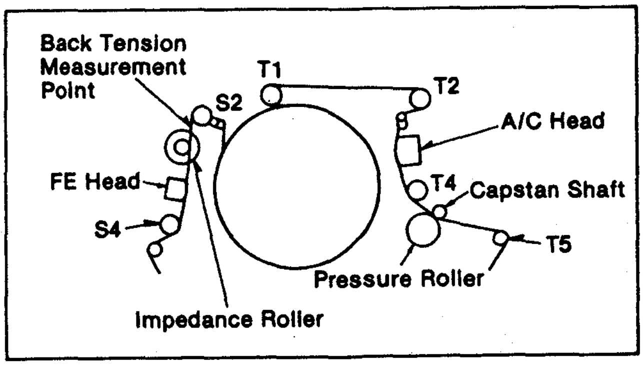

Back Tension Measurement Point
T1
S2
T2
A/C Head
FE Head
T4
Capstan Shaft
S4
T5
Pressure Roller
Impedance Roller

Fig.T1

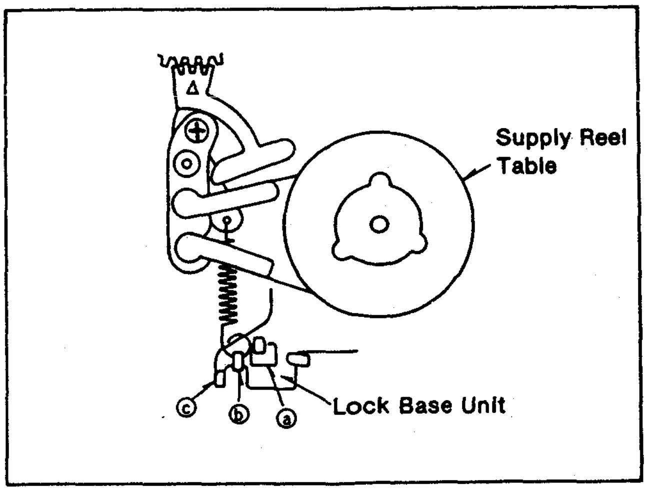

Supply Reel Table
Lock Base Unit
ⓒ
ⓑ
ⓐ

Fig.T2 S–REEL TABLE LOCK.BASE UNIT

(4) After check the Back tension, install the impedance Roller.

2-5-2. HEIGHT ADJUSTMENT OF TAPE GUIDE POST (PRELIMINARY ADJUSTMENT)

Height adjustment of S4 Post, T4 POST, T5 Post specification.

S4 Post: 17.125+-0.025mm
T5 Post: 17.175+-0.025mm
T4 Post: 17.175+-0.025mm

(1) For adjustment S4 Post height, turn 4mm Nut(A) Slightly in either direction as necessary to the correct clearance between the upper edge of lower tape guide on S4 Post and lower portion of Mecha chassis as shown in Fig.T3.

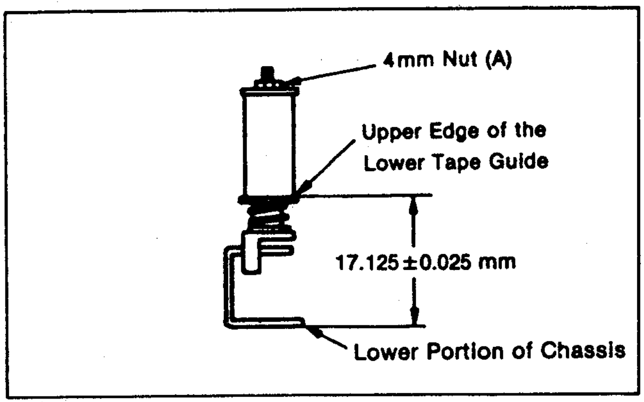

4mm Nut (A)
Upper Edge of the Lower Tape Guide
17.125±0.025 mm
Lower Portion of Chassis

Fig. T3

Confirmation of Tape Travel

(1) Playback a cassette tape and confirm that the tape travels without curling at upper and lower guides on posts T4, T2, S4 and S2 as shown in Fig.T4.

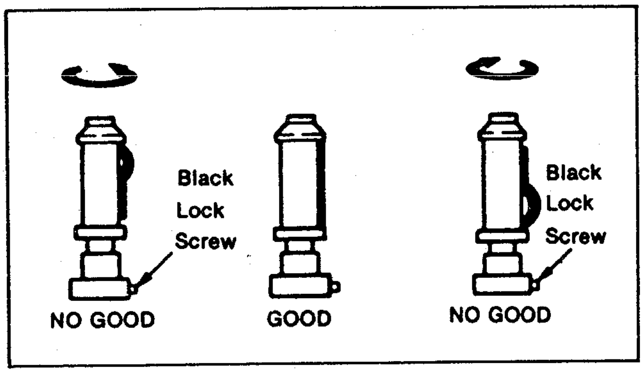

Black Lock Screw
NO GOOD
GOOD
Black Lock Screw
NO GOOD

Fig. T4

(2) If curling is apparent adjust the height of posts by turning the top of post with Hex Wrench.

Note:
Before turning S2 and T1, slightly loosen the Black Lock Screw using the Screw Driver.

2-5-3. TAPE INTERCHANGEABILITY ADJUSTMENT

NOTE:

1) To perform these adjustment / confirmation procedures make sure that the Tracking Control is set in fixed position by pushing both of the Tracking Control Up/Down switches simultaneously.
2) **Before these adjustment/confirmation procedures,remove the cassette protective tape cover from a cassette tape or the Alignment tape** 4822 397 30186

***Equipment Reqaired**
Dual Trace Oscilloscope
Alignment tape 4822 397 30186

2-5-4. CONFIRMATION OF TAPE TRAVEL

(1) **Confirmation of A/C Head. This confirmation is required when the A/C Head or capstan Motor is replaced and for preliminary height adjustment**
(2) Looking at the lower edge of the Control Head with the tape in motion, ensure that lower edge of the tape runs 0.25mm above the lower edge of Control Head. If it doesn't turn the A/C Head Height Adjustment Nut slightly in either direction as necessary to correct it.

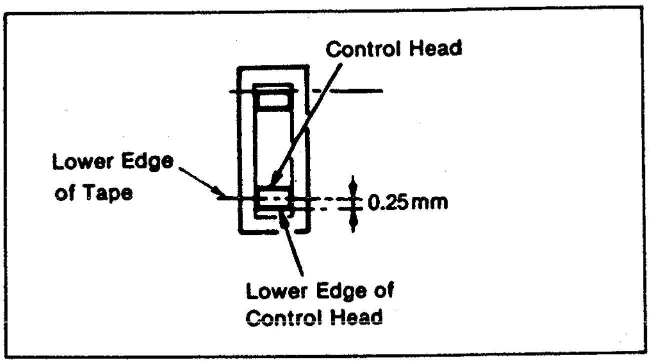

Control Head
Lower Edge of Tape
0.25mm
Lower Edge of Control Head

Fig.T5.

2-5-5. AZIMUTH ADJUSTMENT OF A/C HEAD.

(1) Connect the oscilloscope to Audio Line Output.
(2) Playback the Monoscope portion(6KHz, Mono) of the Alignment Tape.
(3) Adjust the Azimuth Adjustment Screw on the A/C Head Base as shown in Fig.T6 so that output level is at a maximum.

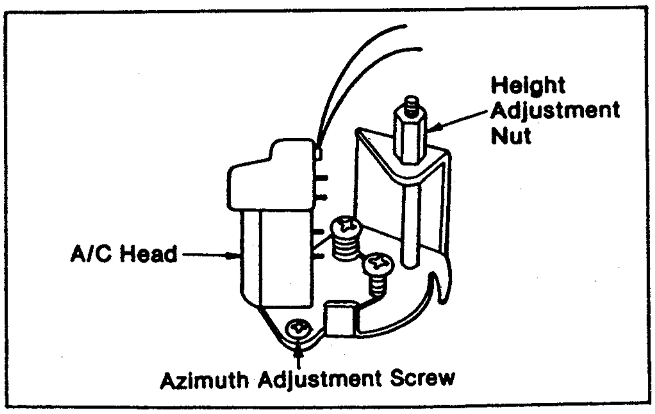

Height Adjustment Nut
A/C Head
Azimuth Adjustment Screw

Fig. T6

2-5-6. HORIZONTAL POSITION ADJUSTMENT OF A/C HEAD

(1) Set the Tracking Control to the fixed position by pushing both of the Tracking Control Up/Down switches simultaneously.
Connect the oscilloscope to TP8002.

(2) **Playback the monoscope portion of the alignment tape and confirm that RF envelope appears as show Fig. T7**

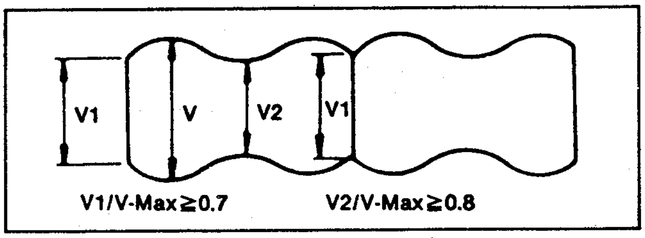

V1
V
V2
V1
V1/V-Max≥0.7
V2/V-Max≥0.8

Fig. T7

(3) If adjustment is required, slowly move the A/C Head Base back and forth using the H–Position adjustment screwdriver 4822 321 50432 turning screw(D) so that envelope is at a maximum.

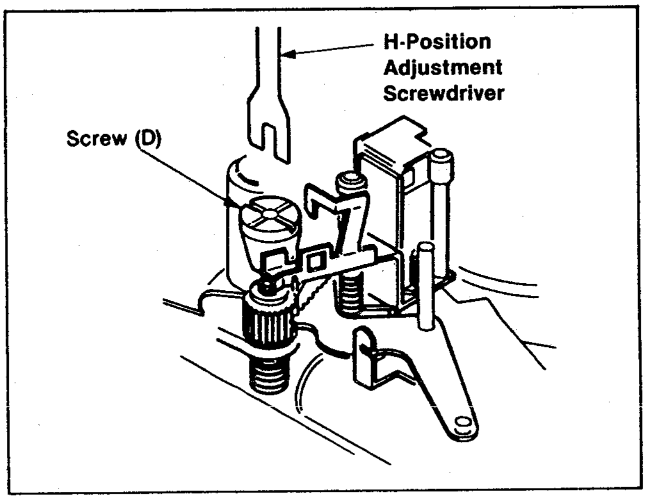

H-Position
Adjustment
Screwdriver
Screw (D)

Fig. T8

(4) Confirmation of the correct adjustment can be made by alternately pushing the Tracking Control Up/Down Switches, to check the symmetry of the envelope.

(5) Reconfirm the symmetry of the envelope. If it has changed, repeat step(3) and (4).

2-5-7. CONFIRMATION/ADJUSTMENT OF ENVELOPE OUTPUT

(1) Set the Tracking Control to the fixed position by pushing both of the Tracking Control Up/Down Switches simultaneously, connect the Oscilloscope to TP8002.

(2) **Playback the Monoscope portion of the Alignment Tape and adjust the height of posts S2, T1 posts watching the scope display so that the envelope becomes as flat as possible. (V1/V–MAX>=0.7, V2/V–MAX>=0.8)
If adjustment is required, turn top of post with Hex, wrench for adjustment of S2 and T1.**

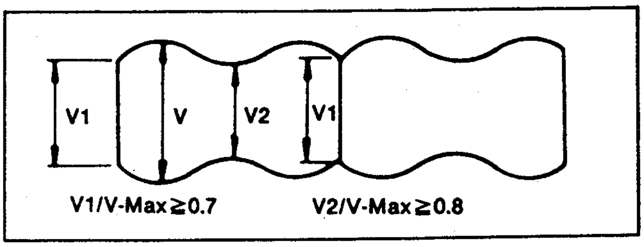

V1
V
V2
V1
V1/V-Max≥0.7
V2/V-Max≥0.8

Fig. T9

(3) **When the scope display is shown in Fig. T10 adjust the heihgt of S2 so that the wave looks like Fig.T12.**

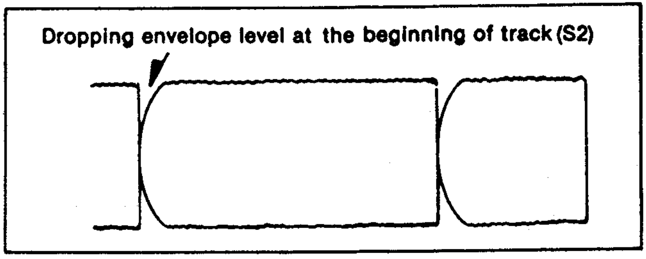

Dropping envelope level at the beginning of track (S2)

Fig. T10

(4) When the scope display is shown in Fig.T11. adjust the height of T1 so that the wave looks like Fig.T12.

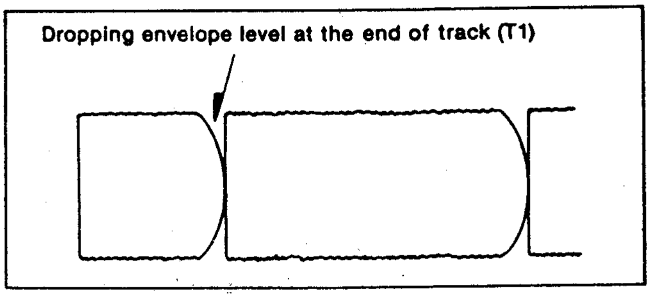

Dropping envelope level at the end of track (T1)

Fig. T11

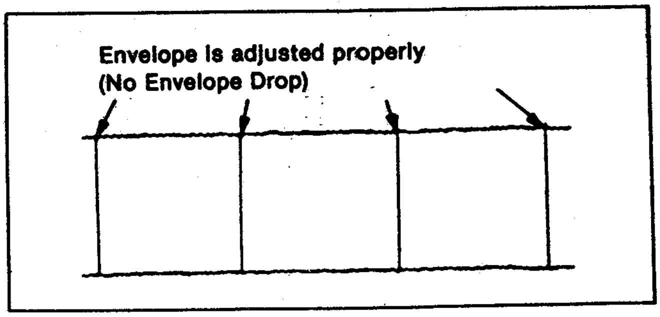

Envelope is adjusted properly
(No Envelope Drop)

Fig. T12

2-6. ELECTRICAL ADJUSTMENT PROCEDURES

2-6-1. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

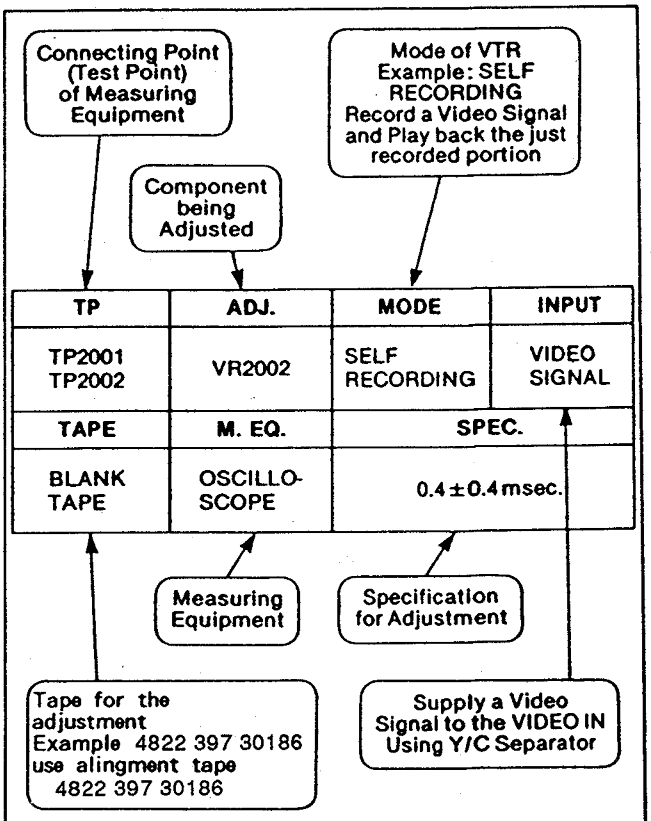
The following equipment is required for adjustment of the VTR section of VHS–Movie.

1. VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range: 0.01–50V
2. Dual Trace Oscilloscope
   Voltage Range: 0.06–50V/div
   Frequency Range: 0–50MHz
   Probe: 10:1 or 1:1
3. Frequency counter
   Frequency Range: 0–10MHz
4. Signal Generator (Sinewave)
   Frequency Range: 0–10MHz
5. Video Sweep Generator
   Frequency Range: 0–10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. VHS–C–Movie Alignment Tape 4822 397 30186
9. VHS–C Blank Tape
10. Pattern Generator
11. Vectorscope
12. DC Power Supply

PREPARATION

1. Remove the casing panels.
   (Refer to the disassembly method)
2. Connect the extension cable is necessary.
   4822 321 62075
   (Camera Main(FP301) to VTR Main(FP1002))
   4822 321 62073
   (Camera Main(P301) to EVF (P802))
   4822 321 62074
   (Camera Main(B302) to Camera Operation)
   4822 321 62074
   (VTR Main(B4003) to AV–JACK)

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Mode of VTR Example: SELF RECORDING Record a Video Signal and Play back the just recorded portion
Component being Adjusted
Measuring Equipment
Specification for Adjustment
Tape for the adjustment Example 4822 397 30186 use alingment tape 4822 397 30186
Supply a Video Signal to the VIDEO IN Using Y/C Separator

TP	ADJ.	MODE	INPUT
TP2001 TP2002	VR2002	SELF RECORDING	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLOSCOPE	0.4±0.4msec.	

Note: If ☒ appears in any block, this means it is not used or not important.

4822 321 62214
Camera Main (FP304) to Secam Encoder (FP8601)
4822 321 62076
Camera Main (VEE8558) to Secam Encoder (P8681)

Remove the Side Case (L) and (R).

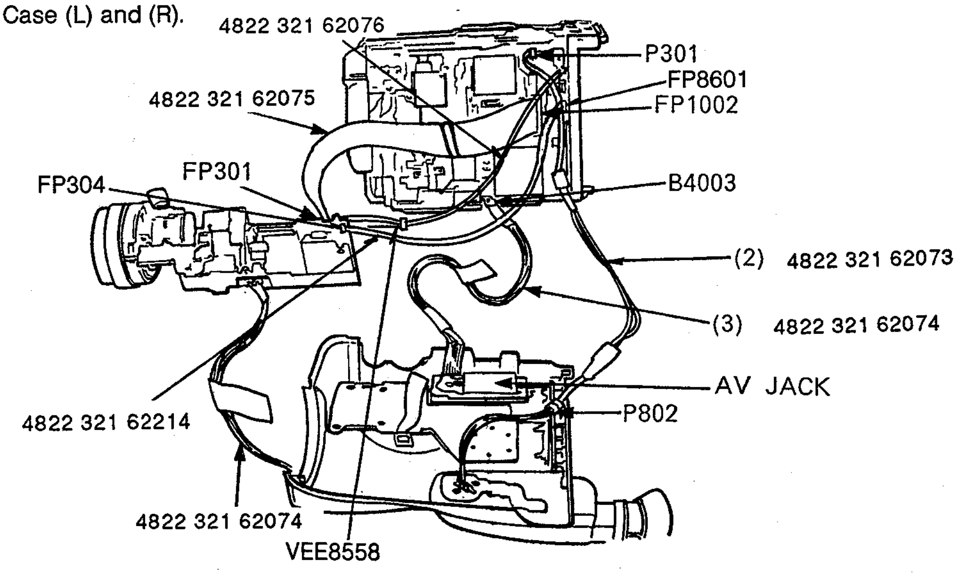

4822 321 62076
P301
FP8601
FP1002
4822 321 62075
FP304
FP301
B4003
(2) 4822 321 62073
(3) 4822 321 62074
AV JACK
P802
4822 321 62214
4822 321 62074
VEE8558

Fig. V1

Note 1:
TRIGGERING THE OSCILLOSCOPE

To trigger the Oscilloscope, the following test point is used.

H. rate : (video output)
V. rate : CKE6(B6002−6) (Head Switching signal)

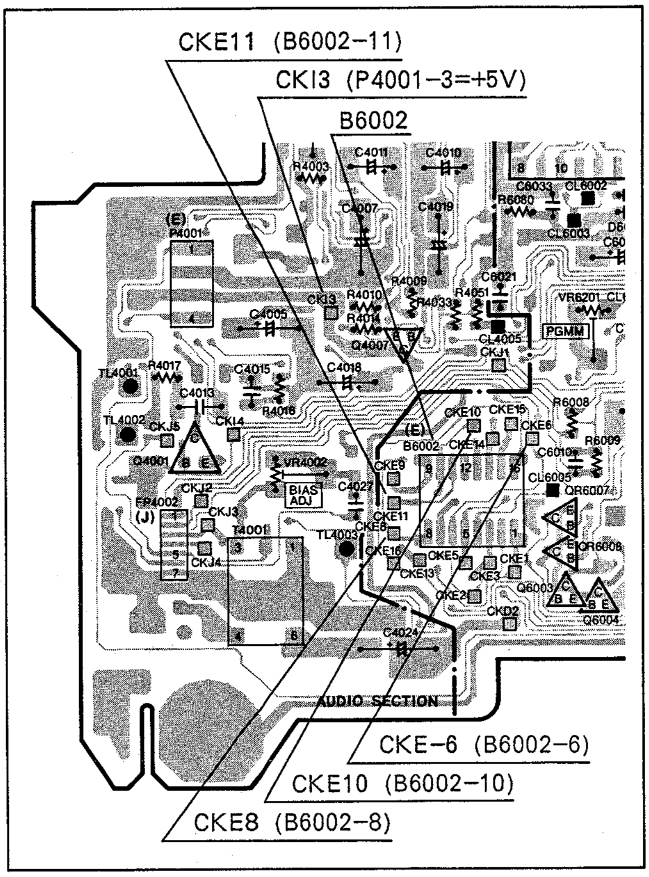

CKE11 (B6002−11)
CKI3 (P4001−3=+5V)
B6002
C4011
C4010
R4003
(E)
P4001
C4007
C4019
R6080
C6033
CL6002
CL6003
R4009
C6021
CKI3
R4010
R4014
R4033
R4051
VR6201
C4005
Q4007
CL4005
CKJ1
PGMM
TL4001
R4017
C4015
C4018
C4013
R4016
TL4002
CKJ5
CKI4
CKE10
CKE15
R6008
CKE6
Q4001
(E)
B6002
CKE14
C6010
R6009
VR4002
CKE9
CL6005
FP4002
(J)
CKJ2
CKJ3
BIAS ADJ
C4027
QR6007
T4001
CKE11
TL4003
CKE8
CKE16
QR6008
CKJ4
CKE5
CKE1
CKE13
CKE3
Q6003
CKE2
CKD2
Q6004
C4024
AUDIO SECTION
CKE−6 (B6002−6)
CKE10 (B6002−10)
CKE8 (B6002−8)

Fig. V2

SERVO SECTION

1. PG SHIFTER ADJUSTMENT

Purpose:
Determine the Head Switching point during play−back.

Symptom of Misadjustment:
May cause Head Switching Noise and/or Vertical jitter in the picture.

TP	ADJ.	MODE	INPUT
B6002 ⑥ CKE-6 VIDEO OUT	VR6701	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE 4822 397 30186	OSCILLO-SCOPE	6.5H±0.5H	

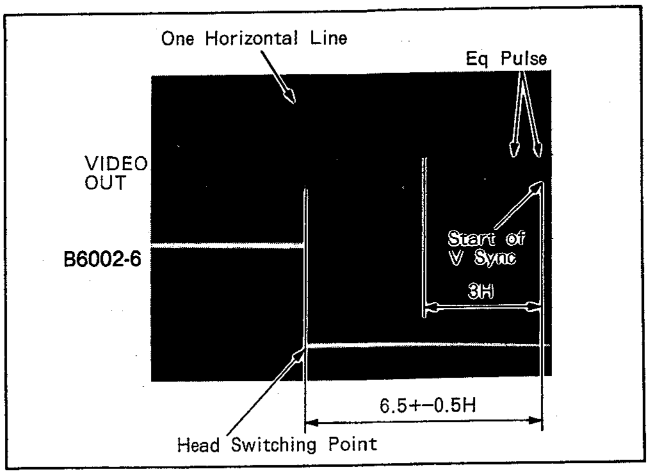


Fig. V3

LUMINANCE & CHROMINANCE SECTION

2. E−E LEVEL ADJUSTMENT

TP	ADJ.	MODE	CHART
VIDEO OUT	VR3004	STOP	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	A=1.0+−0.05Vp-p	

[Purpose]
Set the Optimum E−E level of the Luminance level.

[Symptom of Mis−adjustment]
The picture is sometimes too dark or too bright.

[Note]
(1) Video out should be terminated with 75ohm.
(2) Perform this adjustment after finishing the adjustment for the Camera Section.

(1) Aim the camera at colour bar chart.
(2) Connect the oscilloscope to video output.
(3) Adjust the VR3006 so that Y output (White portion of colour bar) becomes 1.0+−0.05Vp−p.

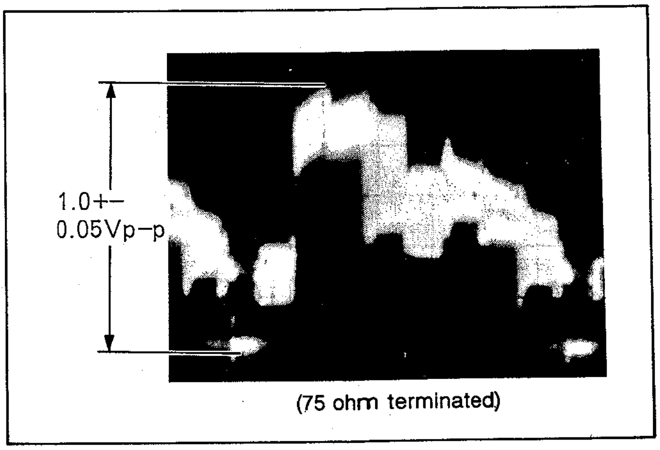


Fig. V4

3. YNR ADJUSTMENT

Purpose:
Improve the overall S/N Ratio especially in the Low Frequency component.

Symptom of Misadjustment:

TP	ADJ.	MODE	CHART
TL3004	VR3002	PLAY	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE	OSCILLO-SCOPE	SIGNAL IS MINIMIZED (LESS THAN 50mV)	

1. Play Back the Alignment tape.
2. Connect the ocilloscope to TL3004.
3. Adjust VR3002 so that signal is minimized.

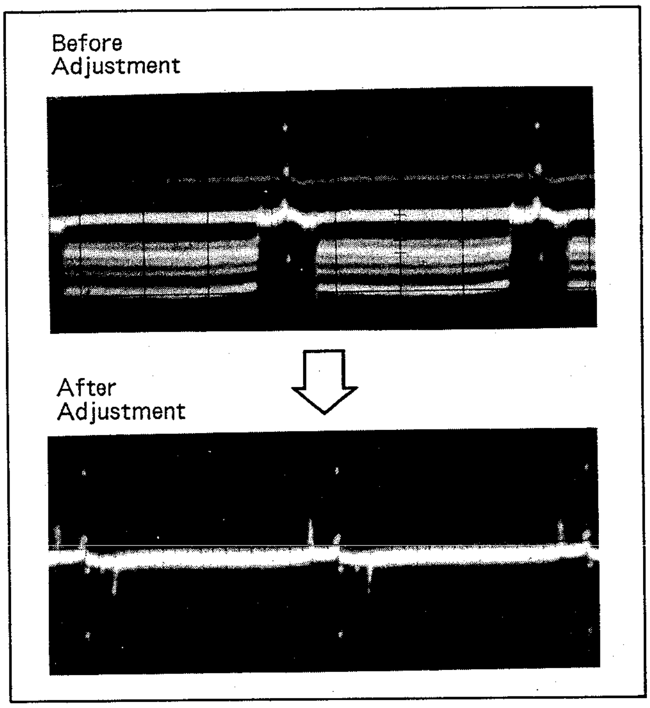


Fig. V5

4. REC BELL FILTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL8501	FL8504	STOP	4.286MHz CW SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE SWEEP GENERATOR		

(1) Set the sweep generator to CW mode.
(2) Adjust CW frequency to 4.286MHz.
(3) Connect the jumper wire between TL8505 and GND.

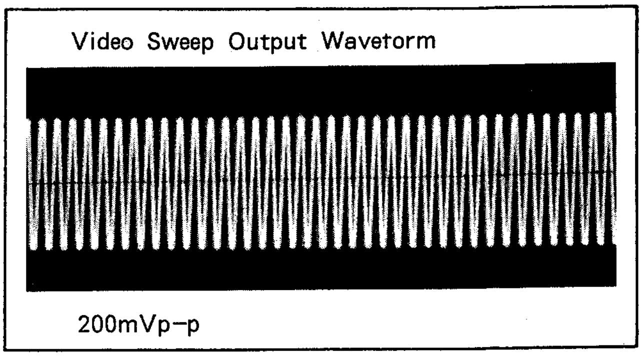


Fig. V6

(4) Adjust the amplitude of CW signal so that amplitude become 200mVp–p.
(5) Supply the CW signal to TL8504.
(6) Adjust FL8504 so that the waveform at TL8501 becomes maximum.

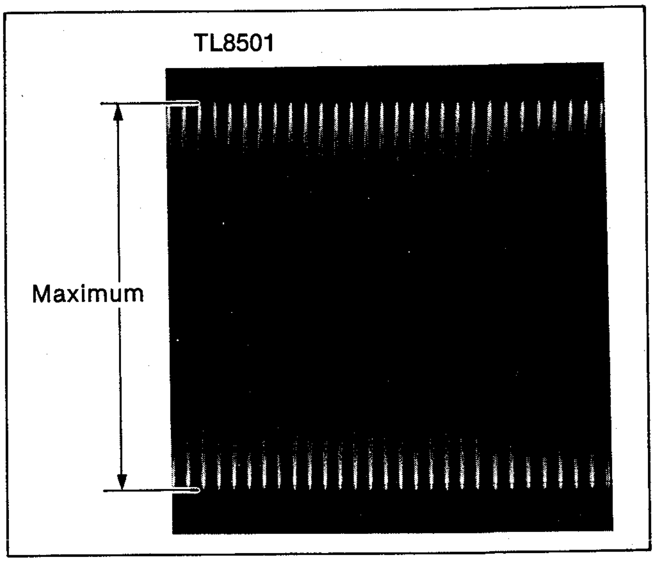


Fig. V7

5. BLANKING PULSE PHASE ADJUSTMENT

TP	ADJ.	MODE	CHART
VIDEO OUT TP8503	VR8502	REC/PLAY	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	0.7+−0.2μsec.	

(1) Aim the camera at colour bar chart.
(2) Connect the CH1 to VIDEO OUT and CH2 of scope to TP8503.
(3) Adjust the VR8502 so that time difference between H–Sync and Blanking pulse become 0.7+−0.2usec. as shown below.

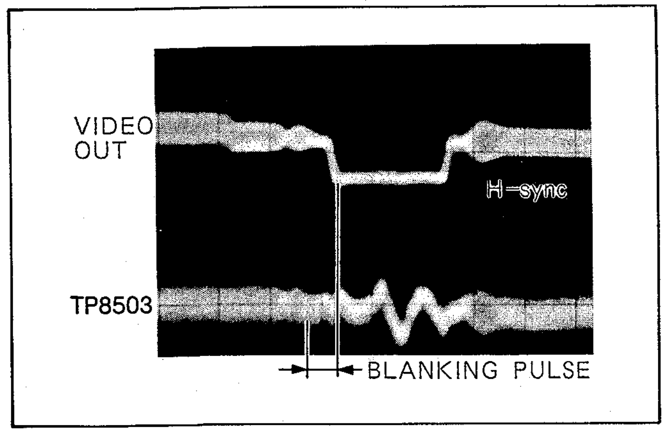


Fig. V8

6.BELL FILTER ADJUSTMENT

TP	ADJ.	LENS CAP	INPUT
TL8504	FL8504	YES	4.286 MHz SINE WAVE
M. EQ.		**SPEC.**	
OSCILLOSCOPE SIGNAL GENERATOR		MINIMIZED WAVEFORM	

(1) Cover the camera lens.
(2) Connect the jumper wire between input(R637) side) of TL8505 and GND.
(3) Supply the 4.286Mhz sine wave signal (from signal generator to TL8504.
(4) Make the connection (JIG) as shown below.
(5) Adjust the BELL FILTER control (FL8504) so that signal become minimum.

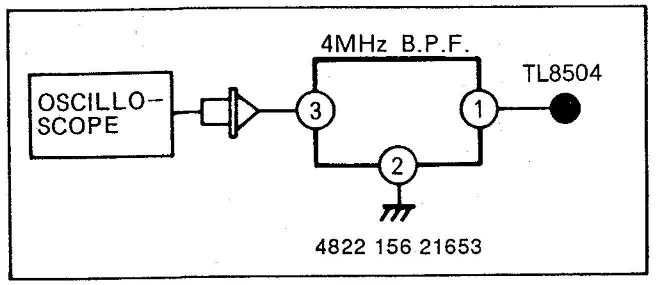


Fig. V9—1

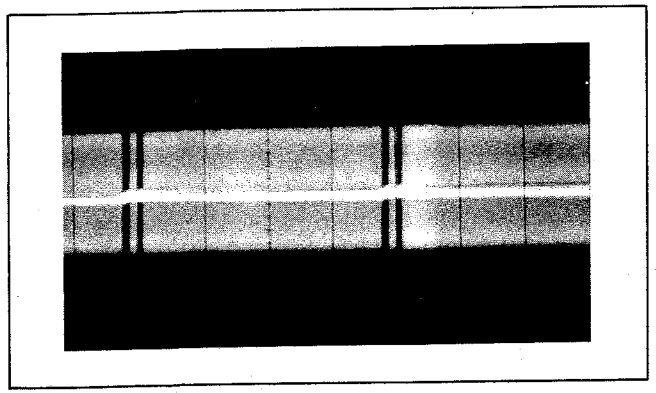


Fig. V9—2

7.SUB CARRIER PLL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP8603	C8651		
M. EQ.		**SPEC.**	
D.V.M.		1.7+–0.1V	

8.VCO OSCILLATOR LIMITER ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR8602 VR8604	YES	
M. EQ.		**SPEC.**	
VECTOR SCOPE		REFER TO Fig. V10	

(1) Cover the camera lens.
(2) Set the unit to FADE ON condition.
(3) Adjust the VCO oscillation limit controls (VR8602 and VR8604) so that odent signal vector comes into specific aquare (10mmxX12mm) on vectorscope as shown below.

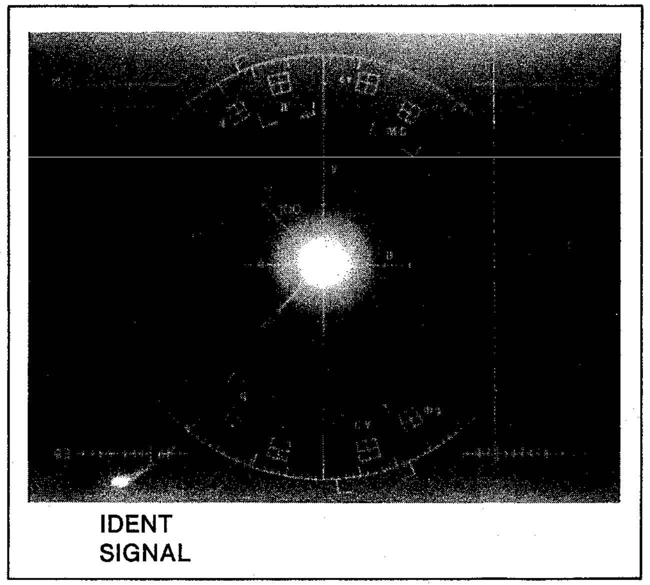


Fig. V10

(4) Set the unit to FADE OFF.

9.VID ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP8602	VR8601		
M. EQ.		**SPEC.**	
OSCILLOSCOPE		460+–40mV	

(1). Connect the oscilloscope TP8602.
(2). Set the unit to FADE ON condition.
(3). Adjut the VR8601 so that VID pulse becomes 460+–40mVp–p.
(4). Set the unit to fade off condition.

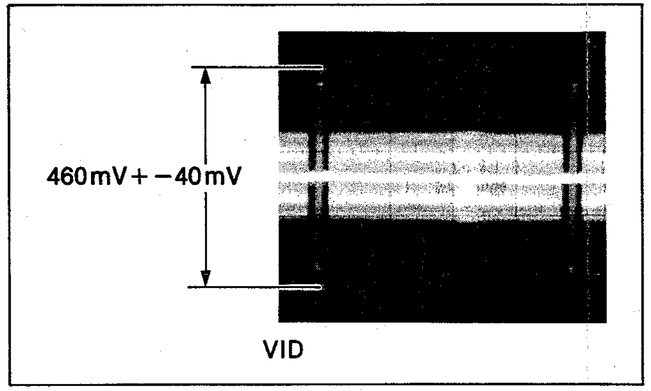


Fig. V11

10. REC CHROMA LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL5002 (HOT) TL5001 (GND)	VR8001	REC/PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	36±2mVp-p	

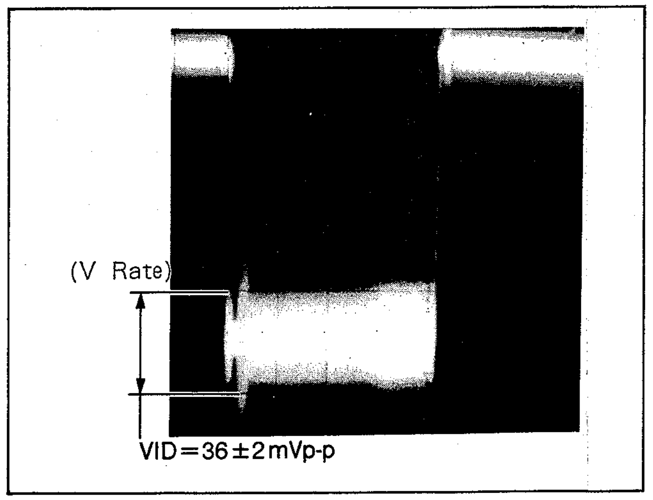


Fig. V12

(1) Close the lens.
(2) Connect the jumper wire between TL3003 and TL8002.
(3) Connect the oscilloscope to TL5001(GND) and TL5002(HOT).
(4) Set the VTR to Rec mode.
(5) Adjust VR8001 so that level of VID becomes 36+–4mVp–p.

11. LUMINANCE RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL5002 (HOT) TL5001 (GND)	VR3001	REC/PLAY (SP)	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	110+–4mVp-p	

(1) Close the lens.
(2) Connect the jumper wire between TP8503 and TL8002.
(3) Set the VTR to REC mode.
(4) Connect the oscilloscope to TP5002(HOT) and TP5001(GND).
(5) Adjust the VR3001 so that level becomes 110+–4mVp–p.

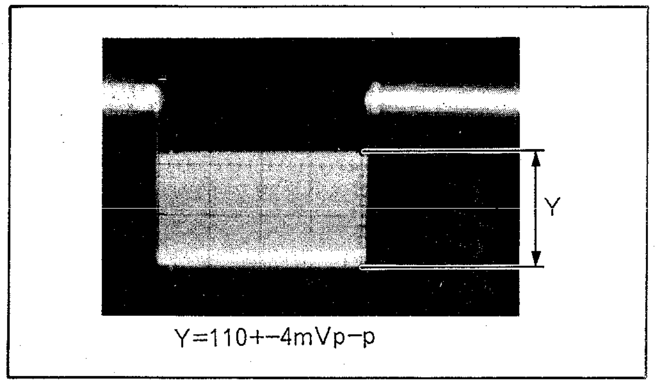


Fig. V13

12. PLAYBACK Y LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3005	SELF RECORDING	COLOUR BAR
TAPE	M. EQ.	SPEC.	
BLANK TAPE	OSCILLO-SCOPE	1.0±0.05Vp-p	

NOTE 1:
Con net the jumper wire between CKE8.CKE11 and CKE13. after that video signal can be input thr ough CKE10(B6002–10).
Ple ase refer to Fig. V14–1.

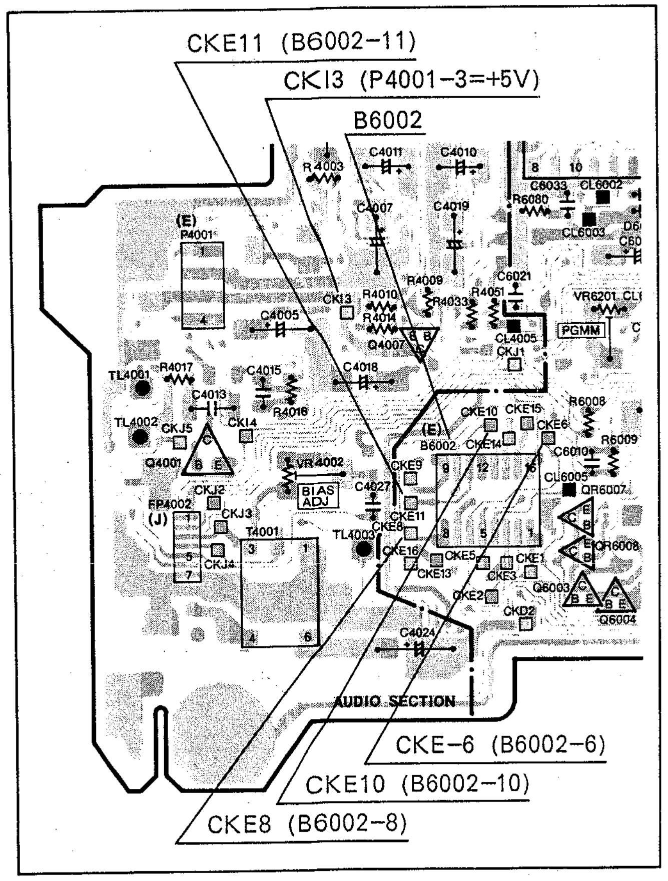

CKE11 (B6002–11)
CKI3 (P4001-3=+5V)
B6002
AUDIO SECTION
CKE-6 (B6002–6)
CKE10 (B6002–10)
CKE8 (B6002–8)

Fig. V14–1

NOTE 2:
Con nect the jumper wire between CKC7(FP8001–7) CKC 10(FP8001–10) and FP8001–1(+5V).
Ple se refer to Fig. V14–2.

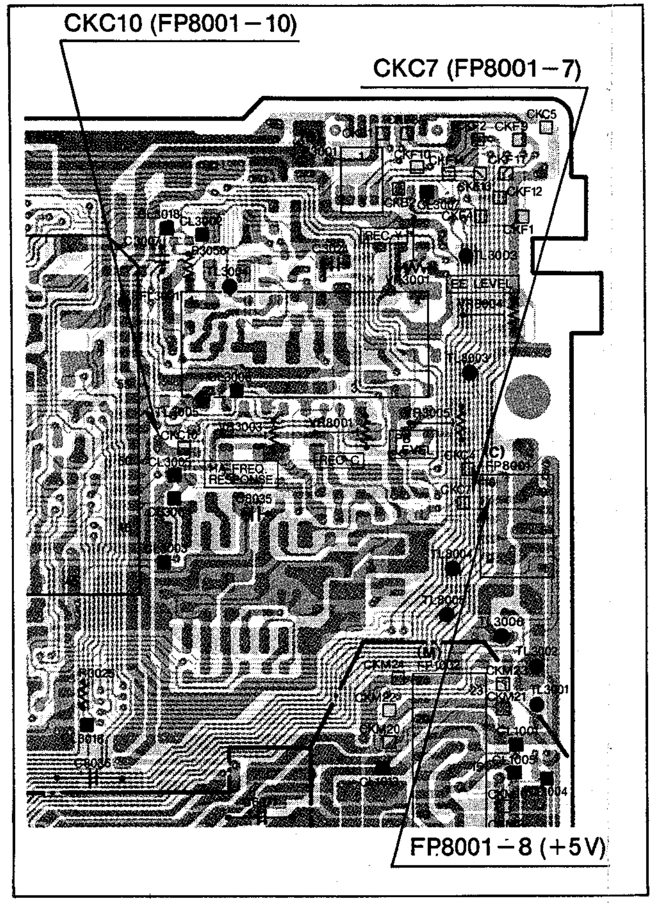

CKC10 (FP8001–10)
CKC7 (FP8001–7)
FP8001–8 (+5V)

Fig. V14–2

(1). Suply the colour bar signal to CKE10 (B6002–10).
(2). Record the signal for few minutes.
(3). Play back the recorded signal.
(4). Adjust the VR3005 so that the Y output becomes 1.0+–0.05Vp–p.

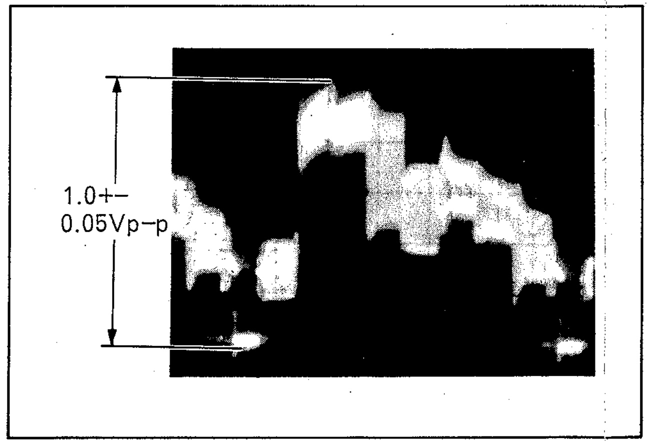


Fig. V15

13. PLAY BACK CHROMA LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR8501	SELF RECORDING AND PLAYBACK	
TAPE	M. EQ.	SPEC.	
BLANK TAPE	OSCILLO-SCOPE	VID=230+–20mVp-p	

Note 1:

Con nect the jumper wire between CKE8,CKE11 and CK1 3.
Aft er that video signal can be input through CKE10(B6002–10).
CKE11 (B6002–11)
CK13 (P4001-3 = +5V)

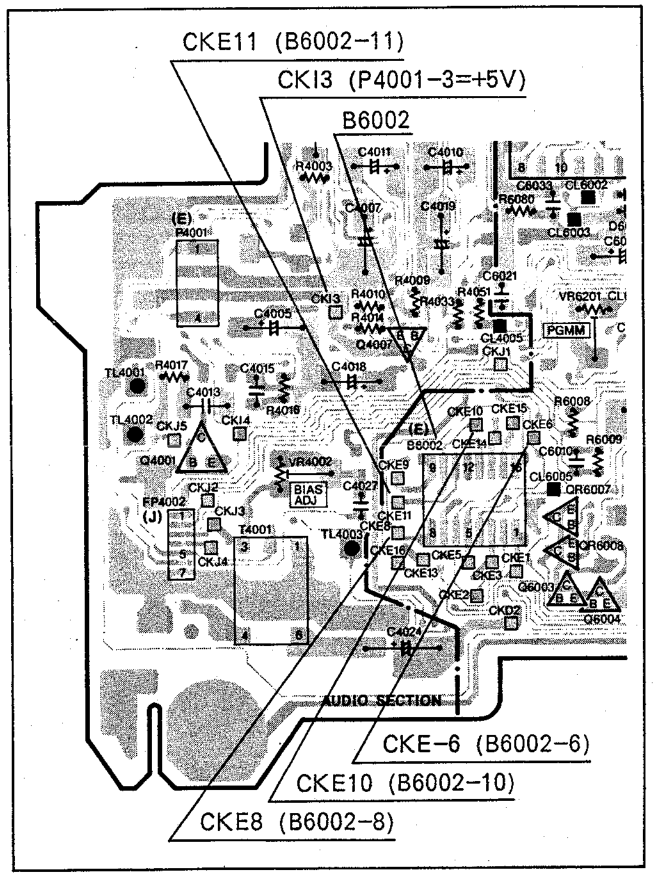
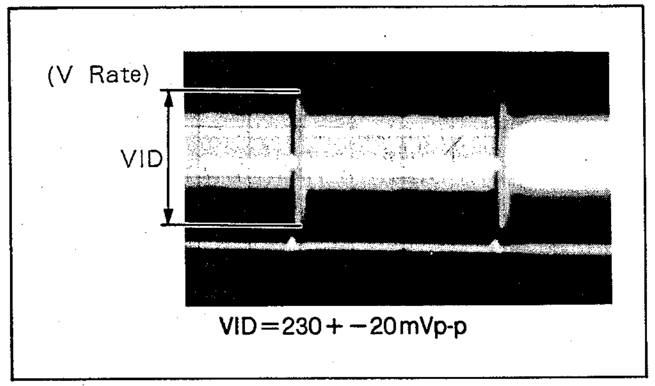

CKE11 (B6002–11)
CKI3 (P4001-3=+5V)
B6002
AUDIO SECTION
CKE-6 (B6002–6)
CKE10 (B6002–10)
CKE8 (B6002–8)

Fig. V16

(1). Cover the Lens.
(2). Record the signal few minutes.
(3). Play back the recorded signal.
(4). Adjust the VR8501 so that the VID signal level becomes 230+–20mVp-p.



VID=230+–20mVp-p

Fig. V17

14. HEAD AMP FREQUENCY RESPONSE ADJUSTMENT

Purpose:
To improve Video Frequency Response Level.

Symptom of Misadjustment:
Video Frequency Response deteriorates.
Picture is noisy.

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3003	SELF RECORDING	VIDEO SWEEP SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	2MHz/0.1MHz=2±1dB	

Note 1:
Process C.B.A. must be remove.

Note 2:
Connect the jumper wire between CKE8, CKE11 and CKI3. After that video signal can be input through CKE10(G6002–10).

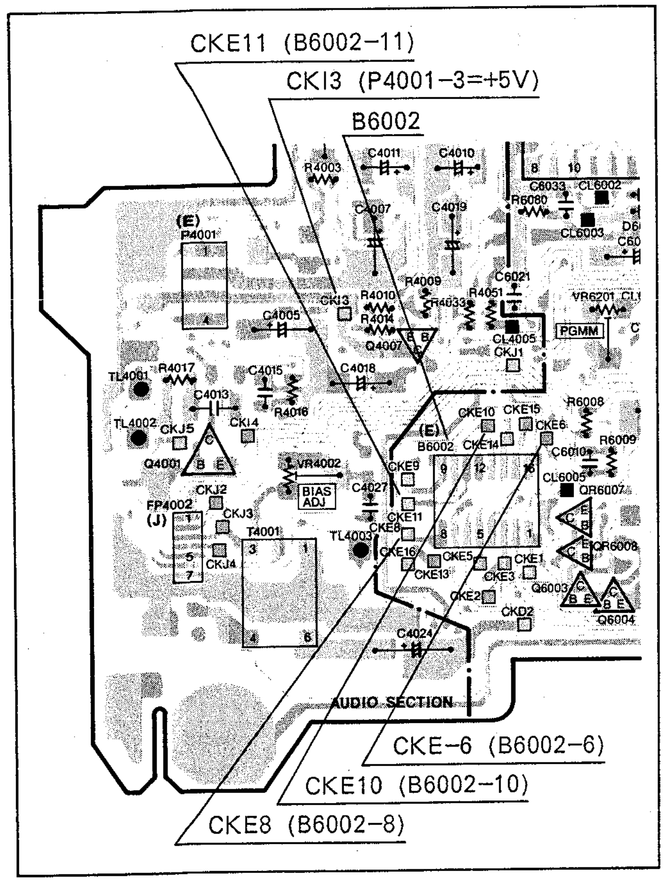
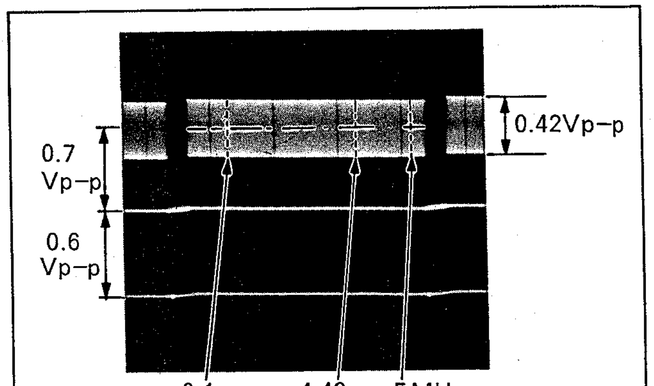

CKE11 (B6002–11)
CKI3 (P4001–3=+5V)
B6002
(E)
P4001
R4003
C4011
C4010
C4007
C4019
R6080
C6033
CL6002
CL6003
R4009
C6021
R4010
R4051
R4033
R4014
Q4007
VR6201
PGMM
CL4005
CKJ1
CKI3
C4005
R4017
C4015
C4018
TL4001
C4013
R4016
TL4002
CKJ5
CKI4
Q4001
VR4002
BIAS ADJ
CKJ2
FP4002
(J)
CKJ3
C4027
T4001
TL4003
CKJ4
CKE10
CKE15
CKE6
R6008
R6009
(E)
B6002
CKE14
CKE9
C6010
CL6005
QR6007
CKE11
CKE8
QR6008
CKE16
CKE5
CKE1
CKE13
CKE3
CKE2
Q6003
CKD2
Q6004
C4024
AUDIO SECTION
CKE–6 (B6002–6)
CKE10 (B6002–10)
CKE8 (B6002–8)

Fig. V18



CONDITIONS : 1. BURST SIGNAL OFF
2. 75ohm TERMINATED

Fig. V19

2. Supply sweep signal to CKE10(B6002–10).
3. Record the signal for ten minutes.
4. Play back the recorded signal.
5. Adjust VR3003 so that the level is within the 2MHz spec. as shown below.

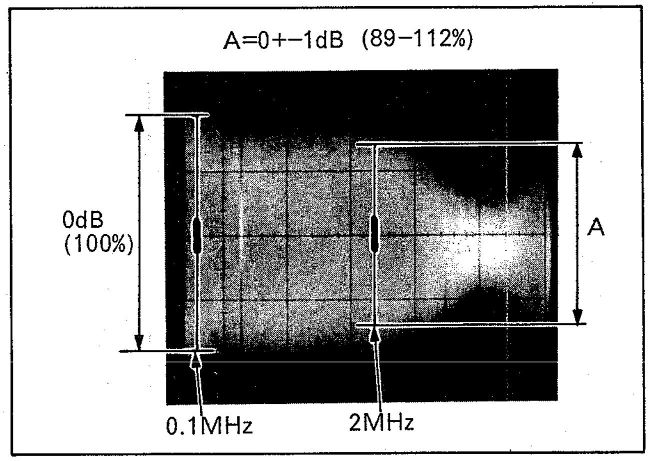


Fig. V20

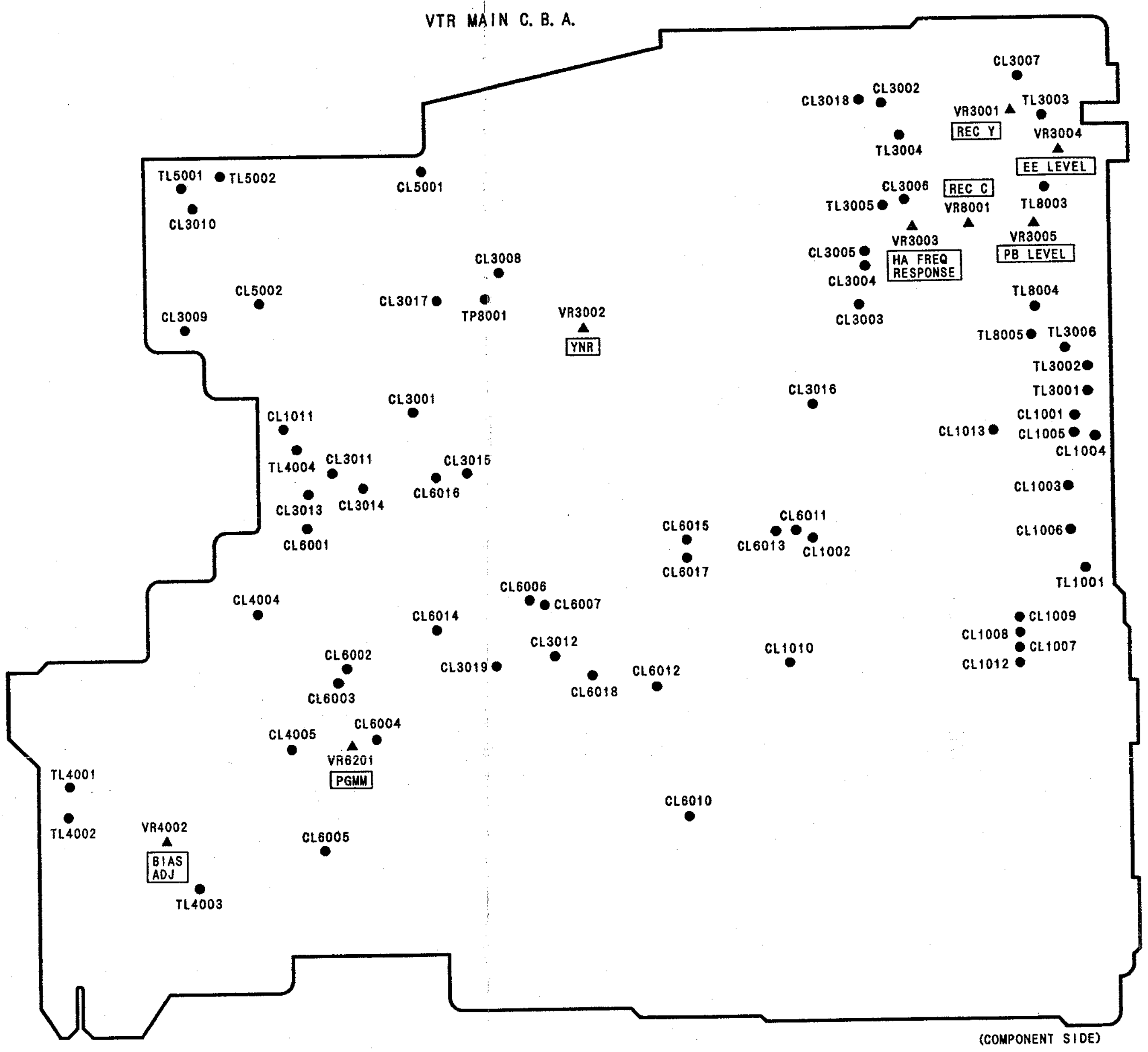
AUDIO SECTION

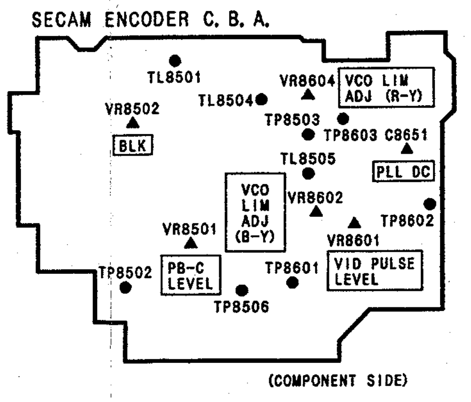
15. AUDIO BIAS CURRENT ADJUSTMENT

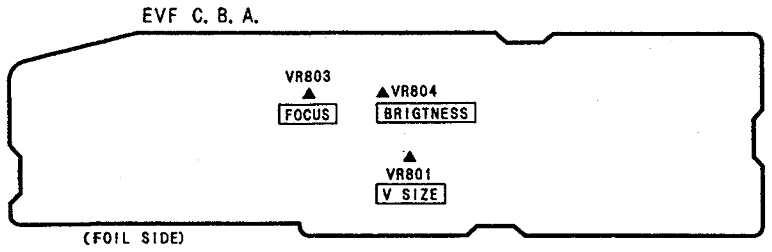
TP	ADJ.	MODE	INPUT
TL4001 (HOT) TL4002 (GND)	VR4002	REC	disconnect P4001
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	oscilloscope (V.T.V.M.)	7.6+–0.3mVp-p (2.7mVrms+–0.1mVrms)	

Note:
Connector(P4001) must be disconnected.

LOCATION OF TEST POINTS & CONTROLS


VTR MAIN C. B. A.
CL3007
CL3018
CL3002
VR3001
TL3003
REC Y
VR3004
TL3004
EE LEVEL
TL5001
TL5002
CL5001
CL3006
REC C
TL3005
VR8001
TL8003
CL3010
VR3003
VR3005
CL3008
CL3005
HA FREQ RESPONSE
PB LEVEL
CL3004
CL5002
CL3017
TP8001
VR3002
CL3003
TL8004
CL3009
YNR
TL8005
TL3006
TL3002
TL3001
CL3001
CL3016
CL1011
CL1001
CL1013
CL1005
CL1004
TL4004
CL3011
CL3015
CL6016
CL1003
CL3013
CL3014
CL6015
CL6011
CL6001
CL6013
CL1002
CL1006
CL6017
TL1001
CL6006
CL4004
CL6007
CL6014
CL1009
CL1008
CL1007
CL3012
CL1010
CL6002
CL3019
CL6012
CL1012
CL6018
CL6003
CL6004
CL4005
VR6201
PGMM
TL4001
CL6010
TL4002
VR4002
CL6005
BIAS ADJ
TL4003
(COMPONENT SIDE)


SECAM ENCODER C. B. A.
TL8501
VR8604
VCO LIM ADJ (R-Y)
VR8502
TL8504
TP8503
BLK
TP8603
C8651
TL8505
PLL DC
VCO LIM ADJ (B-Y)
VR8602
VR8501
TP8602
VR8601
TP8502
PB-C LEVEL
TP8601
VID PULSE LEVEL
TP8506
(COMPONENT SIDE)



2-6-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

The following adjustment are for Electric Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely aligned before viewfinder adjustments are made.

1. CENTERING ADJUSTMENT

(1) Aim the camera at the registration chart.
(2) Adjust the deflection Yole centering magnets turning them so that the picture on monitor TV is centered.

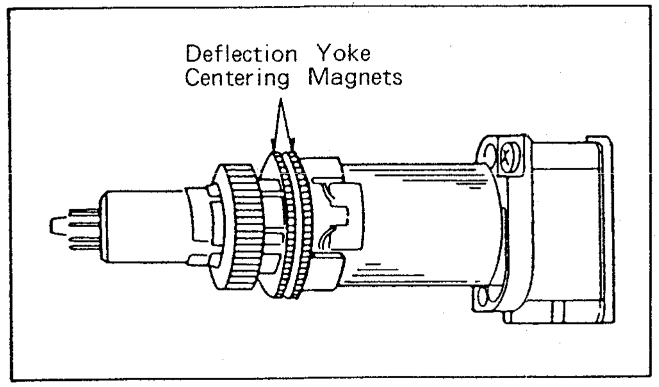


Fig. E1

2. FOCUS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR803	NO	BALL CHART
M. EQ.		SPEC.	
VIEWFINDER		BEST RESOLUTION	

NOTE VR803: E.V.F. C.B.A.
1) Aim the connect at Ball chart.
2) Adjust the VR803 for best resolution in viewfinder.

3. V.SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR801	NO	GRAY SCALE CHART
M. EQ.		SPEC.	
VIEWFINDER		VERTICAL SIZE IS FIXED	

NOTE:
VR801 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the vertical size(VR801) so that the Vertical size is correct and the picture does not roll as shown in Fig.E2.

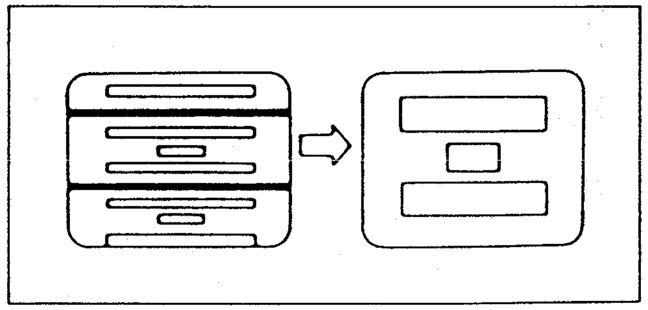


Fig. E2

4. BRIGHTNESS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR804	NO	GRAY SCALE CHART
M. EQ.		SPEC.	
VIEWFINDER		NATURAL GRADATION	

NOTE:
VR804 : E.V.F. C.B.A.

(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control(VR804) so that the black and white bars in the E.V.F. screen are the same as they are in the monitor TV screen.

2-7. ELECTRICAL ADJUSTMENT PROCEDURES

2-7-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section:

1) TEST EQUIPMENT

1. Oscilloscope
   Dual Trace, 50MHz, 2mV/DIV
   10 : 1 Probe
   1 : 1 Probe
2. Digital Volt Meter of VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 foot–candles (1400lux) on the chart surface 3200 degrees K.

2) TOOLS
   * Logarithmic Gray Scale Chart
     (Part No.:4822 397 30217)
   * Colour Chip Chart
     (Part No.:4822 397 30216)
   * Hunting Chart
     (Part No.:4822 397 30209)
   * J Chart & Ball Chart
     (Part No.:4822 397 30222)
   * Colour Bar Chart
     (Part No.:4822 397 30215)

10. Plastic Tip Driver
11. E.V.R. FIXTURE (Part No.:4822 321 61054)
    * ROM 4822 209 52396

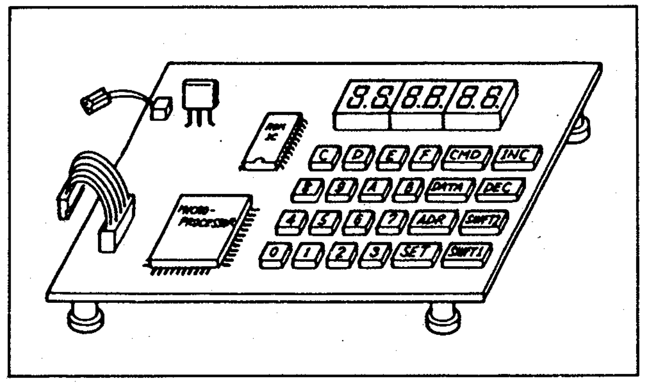


Fig. C1

12. Colour Temperature Conversion Filter
    * C12 Filter (Part No. 4822 397 60152 or 4822 480 50474)
    * C2 Filter (Part No. 4822 397 60153 or 4822 480 50476)
    * Light Box
      (including Gray Scale Chart)
    * EVR CONNECTION Cable 4822 321 61621
13. Extension Cable
    * EVR CONNECTION Cable (5P)
      (Part No. 4822 321 61621)
    * CONNECTION Cable for Measurement (24P)
      (Part No. 4822 321 61617)
    * Extension Cable (24P)
      (Part No. 4822 321 61346)
14. Camera Extension Cables

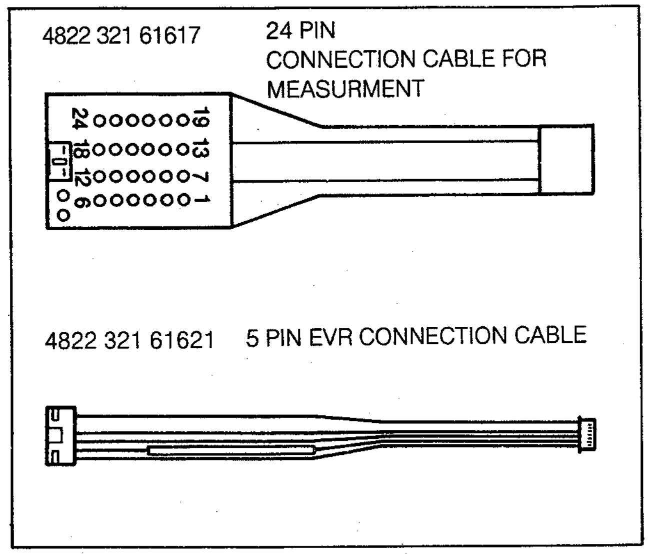


Fig. C2

1. STANDARD SETTING FOR CAMERA ADJUSTMENT

The camera switches must be set in the following position for camera adjustment unless other wise specified each adjustment procedure.

1) White Balance Switch...White set
   (Refer to How to White Set)
   AF...Manual
   High speed shutter...OFF
   Fade...OFF
2) Iris...Center(ALC condition)
3) Use 3200 degrees kelvin light source for lighting.
4) To trigger the oscilloscope, use Video output.
5) Service work for camera unit must be performed in a dust free location to maintain the lens cleanliness.

(How to set White Balance)

1) Aim the camera at white chart.
2) Push [SHIFT 1 + 4] simultaneously.

2–1. DESCRIPTION OF COMMAND

Selecting the communication for the type of data exchange performed between EVR Fixture and camcorder.

Command	Communication	Contents
02	EVR Fixture → EEPROM	Writing the data to address of EEPROM. (Lower Digit)
12	EVR Fixture → EEPROM	Writing the data to address of EEPROM. (Upper Digit)
04	EEPROM → EVR Fixture	Reading out the data of EEPROM. (Lower Digit)
14	EEPROM → EVR Fixture	Reading out the data of EEPROM. (Upper Digit)
08	EVR Fixture → Micro Computer (RAM)	Data transmission of EVR Fixture to Micro computer (RAM).
18	EVR Fixture → Micro computer (RAM)	Data tranmission of EVR Fixture to Micro computer (RAM).
09	Micro computer (RAM) → EVR Fixture	Reading out the data of Micro computer (RAM).
19	Micro computer (RAM) → EVR Fixture	Reading out the data of Micro computer (RAM).

Fig. C1

2–2. ERROR INDICATION

If an error is occurs while EVR is operating, EVR will display one of the error massages listed in **Fig. C2** for 2 seconds and then return to the previous indication.

Error NO.	Contents of Error	Simple checking method
1	Set the command number	
2	Set the wrong Address number	
3	VD signal from camera is not coming.	TP lead wire may be cut
4~6	Detect the error during communication	TP lead wire may be cut
7	Writing error in the EEPROM of camera.	Command or address cure wrong
8	Communication error in the EEPROM of camera	Same as above

Fig. C2

2-3. MACRO OPERATION

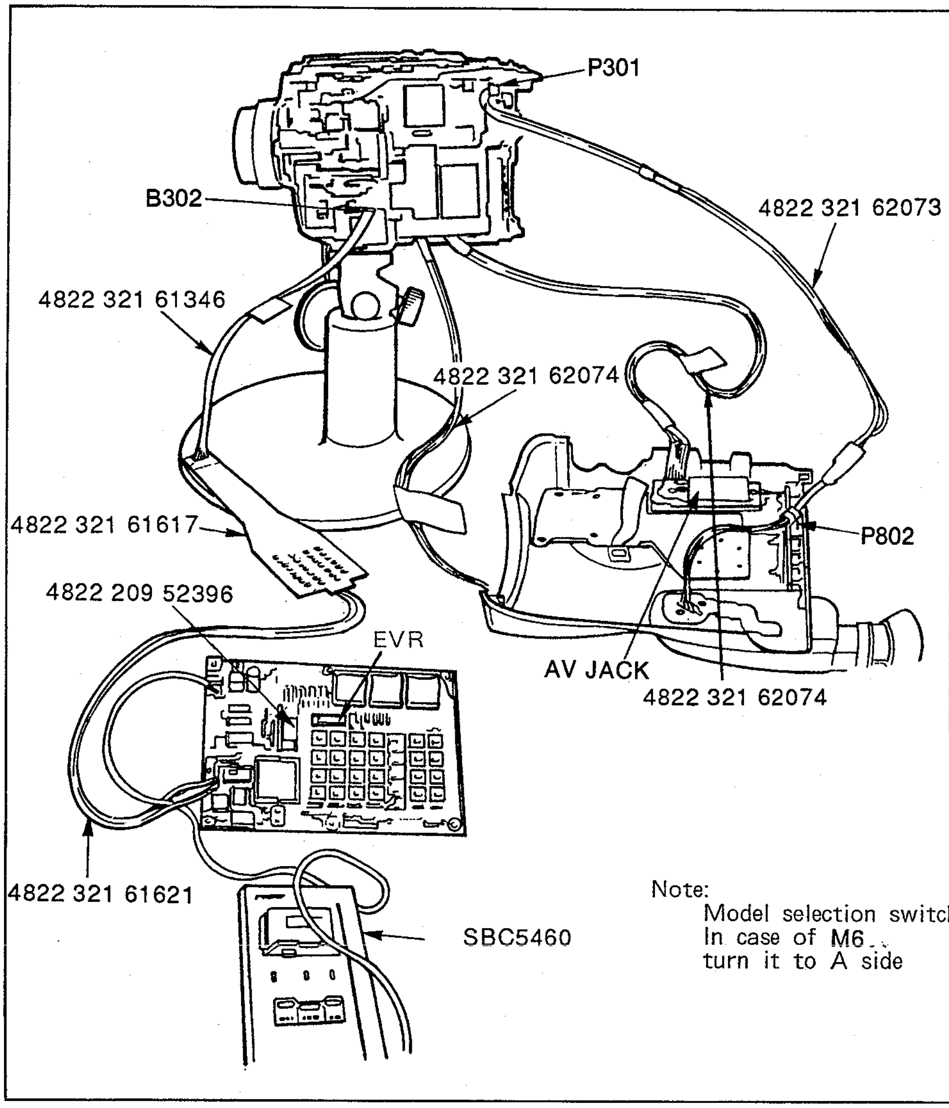
The following operation is provided to transfer the data by one touch.
Buttons to be pushed at the same time.

No.	Buttons to be pushed [Push these together]	Operations
1	SHIFT 1 + 0	Fully opens the IRIS.
2	SHIFT 1 + 1	Fully closes the IRIS.
3	SHIFT 1 + 2	IRIS is turned to Manual Condition.
4	SHIFT 1 + 3	IRIS is returned to Original Condition (AUTO).
5	SHIFT 1 + 4	White set.
6	SHIFT 1 + 5	Zooms to "WIDE" position.
7	SHIFT 1 + 6	Stops the Zoom.
8	SHIFT 1 + 7	Zooms to "TELE" position.
9	SHIFT 1 + 9	Minimizes AGC Gain.
10	SHIFT 1 + A	Maximizes AGC Gain.
11	SHIFT 1 + B	AGC is returned to Original Condition.
12	SHIFT 1 + C	Focuses to "MANUAL" Condition.
13	SHIFT 1 + D	Focuses to "AUTO" Condition.
14	SHIFT 2 + 0	Turns FADE ON. (BLACK FADE)
15	SHIFT 2 + 1	Turns FADE OFF.
16	SHIFT 2 + 4	Turns FADE ON. (WHITE FADE)
17	SHIFT 2 + B	Automatically calculates colour detection and writes the data to the EEPROM (See Fig. C24).
18	SHIFT 2 + F	Writes the fixed data and all average data to the EEPROM. (Fig. C7)

Fig. C3

3. PREPARATION

1) Remove both side cases referring to disassembly method.
2) Connect the E.V.R. FIXTURE and measuring equipment as shown in **Fig. C4.**


P301
B302
4822 321 62073
4822 321 61346
4822 321 62074
P802
4822 321 61617
4822 209 52396
EVR
AV JACK
4822 321 62074
4822 321 61621
SBC5460

PIN ARRANGEMENT OF B302

1	CAMERA CLOCK
2	SID
3	VD
4	Y SIGNAL
5	CDS OUT
6	A/D IN
7	Vref H
8	Vref T
9	OP2
10	WIDE
11	IRIS OPEN
12	RESET
13	GND
14	5V
15	TELE
16	Z.ENC
17	Vref-T
18	Vref-L
19	SUB
20	AGC IN
21	AF CLOCK
22	AF DATA
23	CAMERA TEST
24	GND

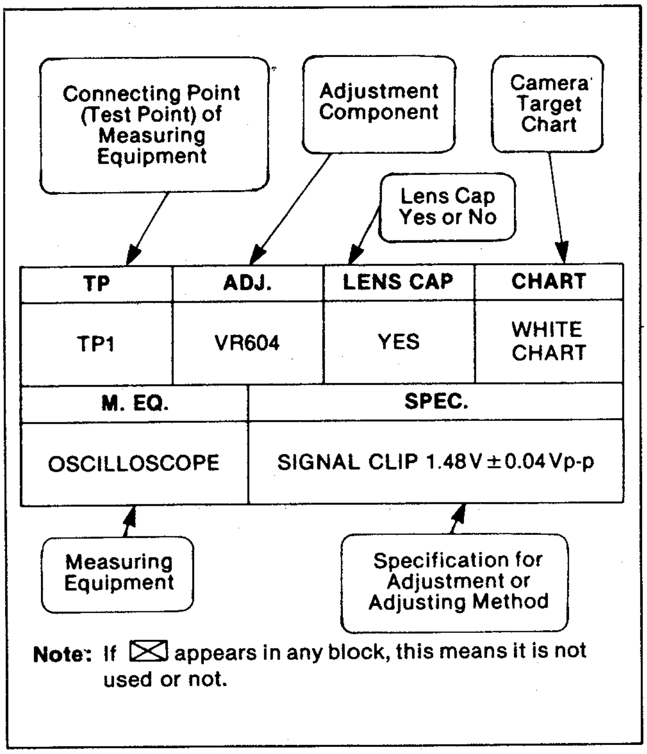
Note:
Model selection switch,
In case of M6..
turn it to A side

Fig. C4

1) Set the mode selector SW on the E.V.R. Fixture according to Model No.
   In case of M6.. , Mode SW, turn it to A side.

2) Turn on the power SW of Movie camera.
3) Turn on the power SW of E.V.R. fixture. The LED Display on E.V.R. Fixture will indicate 08,80,00. If it does not indicated, push the Reset button and/or check the cable connections between EVR and CAMERA.
4) Mode Select SW on the camera Operation C.B.A., should be "manual" condition.
   If "AUTO" condition, focus is always "AUTO".

HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF CONVENTIONAL VR)


Connecting Point (Test Point) of Measuring Equipment
Adjustment Component
Camera Target Chart
Lens Cap Yes or No
TP
ADJ.
LENS CAP
CHART
TP1
VR604
YES
WHITE CHART
M. EQ.
SPEC.
OSCILLOSCOPE
SIGNAL CLIP 1.48V±0.04Vp-p
Measuring Equipment
Specification for Adjustment or Adjusting Method

Note: If ☒ appears in any block, this means it is not used or not.

Fig. C5

HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF E.V.R.)

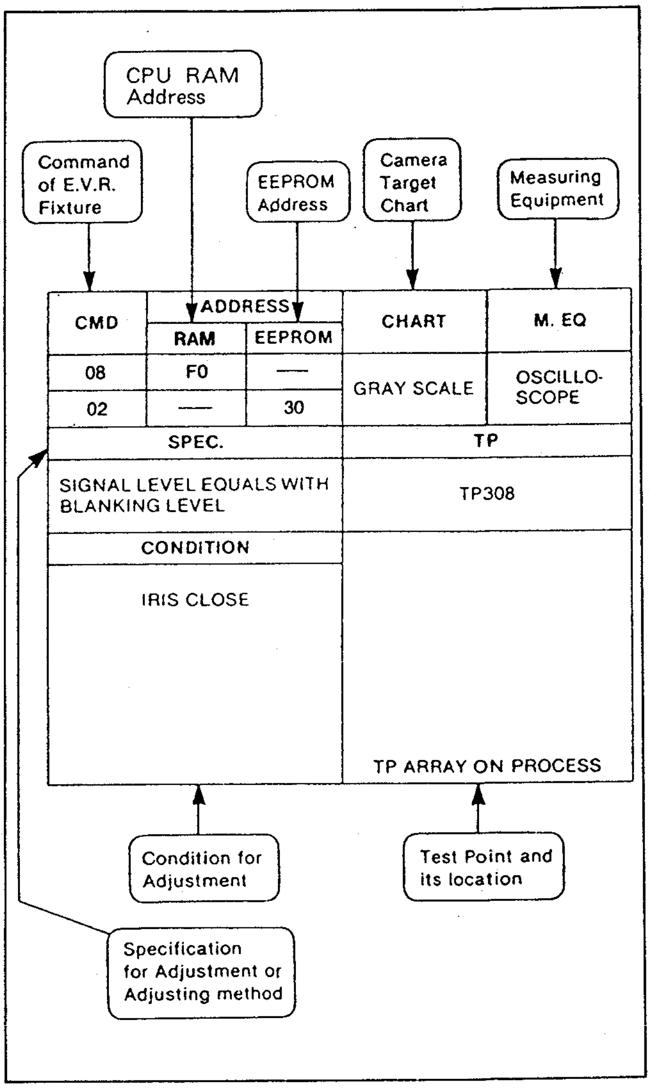

CPU RAM Address
Command of E.V.R. Fixture
EEPROM Address
Camera Target Chart
Measuring Equipment
CMD
ADDRESS
RAM
EEPROM
CHART
M. EQ
08
F0
—
02
—
30
GRAY SCALE
OSCILLO-SCOPE
SPEC.
TP
SIGNAL LEVEL EQUALS WITH BLANKING LEVEL
TP308
CONDITION
IRIS CLOSE
TP ARRAY ON PROCESS
Condition for Adjustment
Test Point and its location
Specification for Adjustment or Adjusting method

Fig. C6

4–1. DATA WRITING

When EEPROM is replaced, all item needs re–adjustment.

But If 4822 209 52396 (New ROM) is installed to the EVR Fixture 321 61054, when the pushing [SHIFT 2 + F] keys simultaneously, Average Data is written in to EEPROM Automatically.

		UPPER							
LOWER		0	1	2	3	4	5	6	7
0	H DIGIT	B-Y Gain 6000 3A	B-Y MAT 6000 95	B-Y WB 6000 37	B-Y limit 6000 2B	B-hili 6000 2C	BACKUP 1 72	vap-c1 D0	aedata-5 15
	L DIGIT	R-Y Gain 6000 47	R-Y MAT 6000 59	R-Y WB 6000 4A	R-Y limit 6000 3F	R-hili 6000 69	BACKUP 1 9E	vap-core 25	aedata-6 53
1	H DIGIT	B-Y Gain 5100 3A	B-Y MAT 5100 95	B-Y WB 5100 55	B-Y limit 5100 2C	B-hili 5100 5F	BACKUP 2 80	Hap-core 82	aedata-7 06
	L DIGIT	R-Y Gain 5100 47	R-Y MAT 5100 59	R-Y WB 5100 57	R-Y limit 5100 3F	R-hili 5100 69	BACKUP 2 54	hi-1. ap FF	aedata-8 01
2	H DIGIT	B-Y Gain 4500 42	B-Y MAT 4500 95	B-Y WB 4500 67	B-Y limit 4500 5F	B-hili 4500 7D	BACKUP 3 8B	cnt2-up 06	00
	L DIGIT	R-Y Gain 4500 47	R-Y MAT 4500 57	R-Y WB 4500 54	R-Y limit 4500 51	R-hili 4500 69	BACKUP 3 56	cnt2-dn D0	B0
3	H DIGIT	B-Y Gain 3600 4A	B-Y MAT 3600 95	B-Y WB 3600 74	B-Y limit 3600 6F	B-hili 3600 8C	BACKUP 4 F0	H+gain 80	NOT USED
	L DIGIT	R-Y Gain 3600 47	R-Y MAT 3600 57	R-Y WB 3600 6F	R-Y limit 3600 69	R-hili 3600 7E	BACKUP 4 3F	Vap-gain 12	NOT USED
4	H DIGIT	B-Y Gain 3300 3A	B-Y MAT 3300 95	B-Y WB 3300 85	C-FLAG TH 68	CSPDm 08	aedata 1 12	c-g-ap 20	NOT USED
	L DIGIT	R-Y Gain 3300 47	R-Y MAT 3300 59	R-Y WB 3300 54	CHSPD 04	CSPDs 19	aedata 2 C5	c-g-sw 55	NOT USED
5	H DIGIT	B-Y Gain 3100 5E	B-Y MAT 3100 84	B-Y WB 3100 80	B-limit 3100 7A	B-hili 3100 A5	aedata 3 11	H-st/p 40	NOT USED
	L DIGIT	R-Y Gain 3100 35	R-Y MAT 3100 57	R-Y WB 3100 85	R-limit 3100 7E	R-hili 3100 A1	aedata 4 0E	H-ed E0	NOT USED
6	H DIGIT	B-Y Gain 2800 5E	B-Y MAT 2800 84	B-Y WB 2800 95	B-limit 2800 7A	B-hili 2800 AF	ped-lvl 0C	V-st/b 50	NOT USED
	L DIGIT	R-Y Gain 2800 35	R-Y MAT 2800 57	R-Y WB 2800 A1	R-limit 2800 A1	R-hili 2800 DB	t-gainn 02	V-ed/p 08	NOT USED
7	H DIGIT	STH FF	TH FORM 0A	Bwb Llimit 37	B-limit SKY 00	B-hili SKY 28	N-speed 70	H-st/b 4C	NOT USED
	L DIGIT	Cnt-lapt 1C	TH BACK 28	Rwb Llimit 4D	R-limit SKY 00	R-hili SKY 57	flag3 7C	sw 0D	NOT USED
8	H DIGIT	Cnt-ct 50	B in 00	Bwb Hlimit 55	B-limit TREE 5F	B-hili TREE 7D	flag6 90	Y-base AC	NOT USED
	L DIGIT	g-lapt 72	R in 00	Rwb Hlimit 57	R-limit TREE 00	R-hili TREE 51	flag8 A0	GANCONTT 20	NOT USED
9	H DIGIT	TH TGAIN 46	HAP-NO 00	B-Y WB 4900 55	BWBZ B 00	BWBZ C 00	Tree BK 05	cntlap 35	NOT USED
	L DIGIT	aflag 04	P-LPF SW 03	R-Y WB 4900 57	RWBZ B 00	BWBZ C 00	P-WAITE 40	g-lap 00	NOT USED
A	H DIGIT	pea per 32	FRRF-TH A0	DSP Ver 11	Obsmpt 31	Baxish Th 00	st-alcp 05	D-Aagc 3F	NOT USED
	L DIGIT	haloth 1C	BKRF-TH 3C	MODEL-NBR 49	mdrf-th 05	Baxish Th 69	icpkadd 2F	cntc 1A	NOT USED
B	H DIGIT	B in 08	tst-flag C0	TH 1 BB	TH 3 6F	PALBR 00	loop g-nl 28	Ychk h A0	NOT USED
	L DIGIT	R in 08	ab set 93	TH 2 22	T-TH 10	LOOPTH 02	loop g-t 28	Ychk 1 28	NOT USED
C	H DIGIT	Outb1 9F	ina1 F3	blc 39	KOTEI A F0	agc-kil-1 88	agclpg 04	Yclpv 1 71	NOT USED
	L DIGIT	Outb2 7B	ina2 E6	ST 68	BLKLVL 00	agc-kil-2 10	NKA-PER 03	darklv 1 00	NOT USED
D	H DIGIT	Outb3 5C	ina3 CD	agc lim 60	thfr-p 19	agc-set 1 30	HIGH-ADD 20	K-JUDGE E6	NOT USED
	L DIGIT	Outb4 4F	ina4 B3	agc lia-t A0	thbk-p 46	agc-set-2 50	NKT-PKR 03	K-CUTPUT E6	NOT USED
E	H DIGIT	Outb0 0B	close 16	SW-set 83	th 4 13	lap-ref 20	CORE 03	K-BACK E6	NOT USED
	L DIGIT	T-gain 24	open 13	MIX 03	gadref C0	f-cnd 48	BACK-LIM 06	BLCW-A 41	NOT USED
F	H DIGIT	A/D IN A4	AF-ap 8D	free-addres 86	R-YKB 1F	LOW CLIP 79	UVSEL 01	clpmax E0	NOT USED
	L DIGIT	AF-Vn 96	AF-AMP A8	PWM-B BE	Y-GAIN 5D	B-YKB 26	VSTART 13	PAL flkg 40	NOT USED

Fig. C7 Address map of all Average data

4-2. VTR CARRIER BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B-Y: B8 R-Y: BB	—		VECTOR-SCOPE
02, 12	—	B-Y: 4F (L) R-Y: 3F (H)		
SPEC.			TP	
CENTER OF VECTORSCOPE			VIDEO OUT	

Purpose:
Set chroma signal black and white level.

Symptom of Misadjustment:
With a large shift, colour is added to Black and white areas in the picture.

Note:
Refer to preparation for connection of EVR.

<Preparation>

1. Connect the vectorscope to Video out.
2. Aim the camera at white chart.
3. Push [SHIFT 1 + 4] keys simultaneously for white set.
4. Place the unit to "IRIS CLOSE" by pushing [SHIFT 1 + 1] keys simultaneously.
5. Push [SHIFT 1 + 9] keys simultaneously for set the AGC to "MINIMUM".

<Adjustment for R-Y>

Push following keys in order.

6. * [CMD], [1], [8].
   * [ADR], [B], [B].
7. Push [INC] or [DEC] keys until the vectors are in or close as possible to the centre, See Fig.C8.

<Data writing for R-Y>

Push following keys in order.

8. * [CMD], [1], [2].
   * [ADR], [3], [F].
   * [SET].

<Adjustment for B-Y>

Push following keys in order.

9. * [CMD], [1], [8].
   * [ADR], [B], [8].
10. * Push [INC] or [DEC] keys until the vectors are in or as close as possible to the centre, See Fig.C8.

<Data writing for R-Y>

Push following keys in order.

11. * [CMD], [0], [2].
    * [ADR], [4], [F].
    * [SET].
    * [SHIFT 1 + 3] (Iris is return to Auto Mode).
    * [SHIFT 1 + B] (AGC return to Original Mode).

4-3. PLL FREQUENCY ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TL308	C201		
M. EQ.		SPEC.	
FREQUENCY COUNTER		9.656250MHz+−100Hz	

Purpose:
CCD Drive pulse adjustment.

Symptom of Mis-adjustment:
Picture sync misoperation.

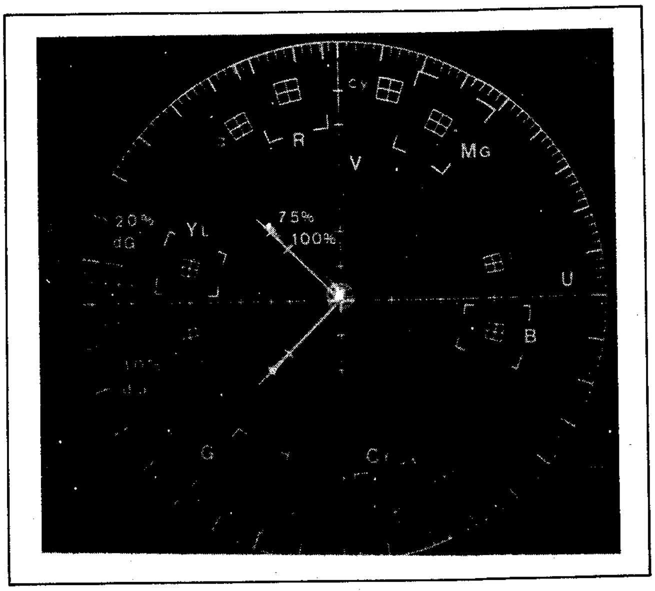
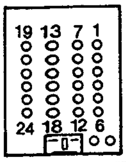


Fig. C8

4-4. HALL AMP ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B5	—		D.V.M
	VR701	—		
02	—	IF		
SPEC.			TP	
VOLTAGE B302-9 (321 61617-PIN 9) = VOLTAGE B302-18 (321 61617·PIN 18) VOLTAGE B302-9 (321 61617-PIN 9) = VOLTAGE B302-7 (321 61617-PIN 7)			B302-9 (PIN Number 9 of 321 61617) 	

Purpose:
Hall Amp Adjustment.

Symptom of Mis–adjustment:
Hunting occurs or focus stops.

<Preparation>

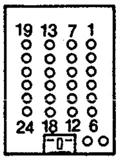
1. Connect the jumper wire between B302–11 (321 61617–PIN11) and GND for Making IRIS close. (Do not use EVR for IRIS close)

<Adjustment 1>

Push the following keys in order.

2. * [CMD], [1], [8].
   * [ADR], [B], [5].
3. * Push [INC] or [DEC] keys until the voltage Level at B302–9 (321 61617–PIN9) become Vref1 +–10mV. (Vref1 = B302–18 (321 61617–PIN18)).

4–5. FOCUS ENCODER AND ZOOM ENCODER ADJUSTMENT

<table>
<tr><th rowspan="2">CMD</th><th colspan="2">ADDRESS</th><th rowspan="2">CHART</th><th rowspan="2">M. EQ.</th></tr>
<tr><th>RAM</th><th>EEPROM</th></tr>
<tr><td>18</td><td>T: B4
W: B3
FOCUS ENCODER: B6</td><td>—</td><td rowspan="3">object: 70cm (Hunting chart)</td><td rowspan="3">DIGITAL VOLTMETER</td></tr>
<tr><td>12</td><td>—</td><td>T: 1F (H)
F: 2F (H)</td></tr>
<tr><td>02</td><td>—</td><td>W: OF (L)</td></tr>
<tr><th colspan="3">SPEC.</th><th colspan="2">TP</th></tr>
<tr><td colspan="3">To be calculated</td><td colspan="2" rowspan="3">B302-8
B302-17
 </td></tr>
<tr><th colspan="3">CONDITION</th></tr>
<tr><td colspan="3">• Focus Manual [SHIFT 1+C]</td></tr>
</table>

Purpose:
Back Focus adjustment.

Symptom of Mis–adjustment:
Lens System is not in focus through out all position of Zoom range.

<Initial Measurement and Preparation>

1. Check the voltage at B302–8(321 61617–PIN8) and B302–17(321 61617–PIN17) before changing the defective lens unit.
   For example:
   B302–8(321 61617–PIN8) : 3.652V
   B302–17(321 61617–PIN17) : 1.456V
2. Make note the potential difference between B302–8 (321 61617–PIN8) and B302–17 (321 61617–PIN17).
   For example:
   3.652 – 1.456 = 2.196V
3. Read out the original data for Zoom/Focus Encoder data from EEPROM.
   Push the following keys in order and take memo for each data.

Step ——→

	CMD	ADDRESS		Data memo
ZOOM ENC TELE	[1], [4]	[1], [F]	[SET]	Example "94"
ZOOM ENC WIDE	[0], [4]	[0], [F]	[SET]	Example "93"
FOCUS ENC	[1], [4]	[2], [F]	[SET]	Example "7E"

Example :
Zoom ENC data for Tele.

Push the following keys in order.

* [CMD], [1], [4].
* [ADR], [0], [4].
* [SET]

When the pushed [SET] key, data LED Shows data number for Zoom Encoder data for TELE.

4. Turn off the Power SW Replace lens unit.
5. Fix the Focus Encoder C.B.A. in centre position as shown in **Fig. C9.**

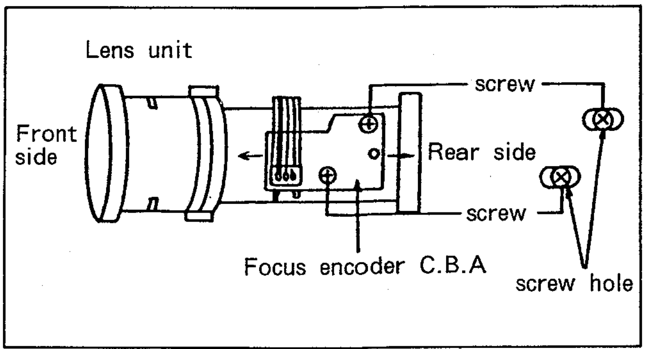


Fig. C9

6. Turn on power SW.
   Set the Focus system to Manual Focus.
   (Pushing [SHIFT 1 + C] keys simultaneously.)

   Zoom the lens to full Tele position.
   Push [SHIFT 1 + 7] keys simultaneously.

   Aim the unit at Hunting Chart from a distance of 70cm.
7. Set the focus to full "–" position.
   * Turn the focus ring counter–clockwise until the picture focus does not change.

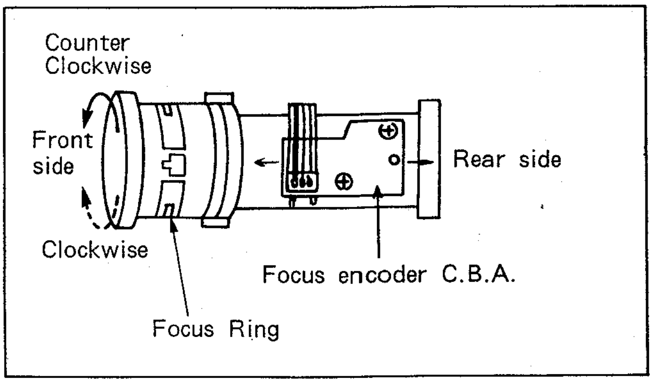


Fig. C10

<Adjustment for TELE Side>

Push the following keys in order.

3. * [CMD], [1], [8].
   * [ADR], [B], [4].
9. * Push [INC] or [DEC] keys until the lens focus is in correct position.

Note 1:
The focus does not change while focus voltage is being adjusted on the EVR.
To see the focus adjustment, the lens unit must be zoomed from TELE to WIDE and back to TELE to activate the focus.
(Push [SHIFT 1 + 5] then push [SHIFT 1 + 7] keys.)

Note 2:
Using the zoom controls on the EVR disables the Zoom controls of TELE/WIDE button on the camera.
Therefore, use EVR([SHIFT 1 + 5] or [SHIFT 1 + 7]) to move zoom for the TELE or WIDE position.

10. When lens focus comes to the correct position (at TELE Side), Push the following keys in order for store the data to EEPROM directly.
    * [CMD], [1], [2].
    * [ADR], [1], [F].
    * [SET].

11. If the lens assembly cannot be focused, Focus Encoder data must be re-Adjusted.
12. * If focus improves when the focus ring is turned counter-clockwise.

    Data for Focus Encoder decrease from original data.

Example:
If original data is "7E".
Focus Encoder data decrease from "7E" a little bit.

Push the following keys in order.

* [CMD], [1], [2].
* [ADR], [2], [F].
* [DATA], [7], [B]. (Data decrease 2-3step)
* [SET].

And then turn off the power SW.
return to step(6).

13. * If focus improves when the focus ring is turned clockwise.

    Data for Focus Encoder increase from original data.

Example:
If original data is "7E".
Focus Encoder data increase from "7E" a little bit.

Push the following keys in order.

* [CMD], [1], [2].
* [ADR], [2], [F].
* [DATA], [8], [0]. (Data increase 2-3step)
* [SET].

And then turn off the power SW.
return to step(6).

<Adjustment for WIDE Side>

14. Check the voltage at B303-8(**321 61617**-PIN8).
    (Example 3.662V)
15. Subtract the voltage that was noted at step(2) from the voltage at step(14).
    For example: 3.662 - 2.196 = 1.466
16. Push the following keys in order for adjust the voltage at B302-17(**321 61617**-PIN17) to 1.466V with EVR as follows.
    * [CMD], [1], [8].
    * [ADR], [B], [3].
    * Push [INC] or [DEC] until the voltage at B302-17(**321 61617**-PIN17) is 1.466V.

<Data writing for WIDE Side>

17. Push the following keys in order.
    (Take care not to change the data while Storing it into the EEPROM.)
    * [CMD], [0], [2].
    * [ADR], [0], [F].
    * [SET].

<Confirm the focus when zooming to Wide Side>

18. Turn the Power SW OFF then ON the Power SW.
19. Set the Focus system to Manual Focus.
    (Push [SHIFT 1 + C] keys simultaneously)
20. Check the back focus while Zooming.
    (If back focus is not good refer to following table.)

1) Focus is not good at full wide side.

   Adjust the data of ADR "B3" at the full Wide Side keeping the voltage at B303-(18) within +-0.05V of the voltage in Step(16).

   Check back focus While Zooming.
   * If back focus is good, go to Step(19).
   * If back focus is not good, stop the zoom at the position of bad focus.
     Turn the focus ring clockwise and/or counter-clockwise.

   * If focus improve when the focus-ring is turned counter-clockwise.
     Data for Focus Encoder decrease a little bit.
     (Same order as step12) then return to step(6).

   * If focus improve when the focus-ring is turned clockwise.
     Data for Focus increase a little bit.
     (Same order as step 13) then return to step(6).
2) Focus is not good-between TELE and WIDE.
   Stop the Zoom at the position of bad focus.
   Turn the focus ring clockwise and/or counter-clockwise.
   * If focus improve when the focus-ring is turned counter-clockwise.
     Data for Focus Encoder decrease a little bit.
     (Same order as step 12) then return to step (6).
   * If focus improve when the focus-ring is turned clockwise.
     Data for Focus Encoder increase a little bit.
     (Same order as Step 13) then return to step (6).

4–6. ZOOM SPEED ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP701	VR702	HIGH SPEED ZOOM	
TAPE	**M. EQ.**	**SPEC.**	
	D.V.M.		

Note 1 :
The zooming speed can be varied in 2 steps. When the [T] or [W] Zoom Button is pressed strongly, the zooming speed is increased.

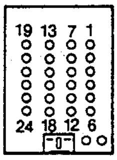
Note 2 :
Perform this adjustment after finishing the ZOOM ENCODER ADJUSTMENT.

Purpose:
Set the zooming speed during high speed Zoom.

Symptom of Mis–adjustment:
Lens System is not in focus during Zooming.

1. Connect the D.V.M. to TL701.
2. Adjust the VR702 so that D.V.M. is 4.75+–0.15V.

4-7. PWM ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B7	——		D.V.M
02	——	2F (L)		
SPEC.			**TP**	
			B302-9 (321 61617-PIN 9) 	

<Preparation>

1. Set the IRIS to "OPEN". (Push [SHIFT 1 + 0]).
2. Connect the D.V.M. to B302–9 (321 61617–PIN9).

<Pre–Adjustment>

Push the following keys in order.

3. * [CMD], [1], [8].
   * [ADR], [B], [7].
4. Push [INC] or [DEC] keys until the Voltage level at B302–9 (321 61617–PIN9) becomes Vref1 +– 50mV. (Vref1 = Voltage at B302–7 (321 61617–PIN7) –500mV)
5. * [SHIFT 1 + 1] (Fully closes the IRIS).
6. * [SHIFT 1 + 0] (Fully opens the IRIS).

<Fine–Adjustment>

Push the following keys in order.

7. * [CMD], [1], [8].
   * [ADR], [B], [7].
8. Push [INC] or [DEC] keys until the Voltage level at B302–9 (321 61617–PIN9) becomes Vref2 +–20mV. (Vref2 = Voltage at B302–7–140mV).

<Data Writing>

Push the following keys in order.

9. * [CMD], [0], [2].
   * [ADR], [2], [F]. (Does not change the data).
   * [SET].
   * [SHIFT 1 + 3] (IRIS is return to Auto Mode).

4-8. V–SUB ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR201	NO	HALOGEN LAMP
M. EQ.	**SPEC.**		
MONITOR TV	NO BLOOMING		

Purpose:
High luminance overflow adjustment.

System of Mis–adjustment:
Colour loss.

1. Zoom all the way in (full tele position or full wide position) and aim the camera at the Halogen Lamp as shown in Fig.C11
2. Set the High Speed Shutter SW to "OFF" position.
3. Diffuse the incoming light using frosted glass or acryl plate. Place the cardboard which has been cut to "U" shape as shown in Fig.C11. between the diffusion plate and the camera.
4. Set the Iris to "Open [SHIFT 1 + 0].

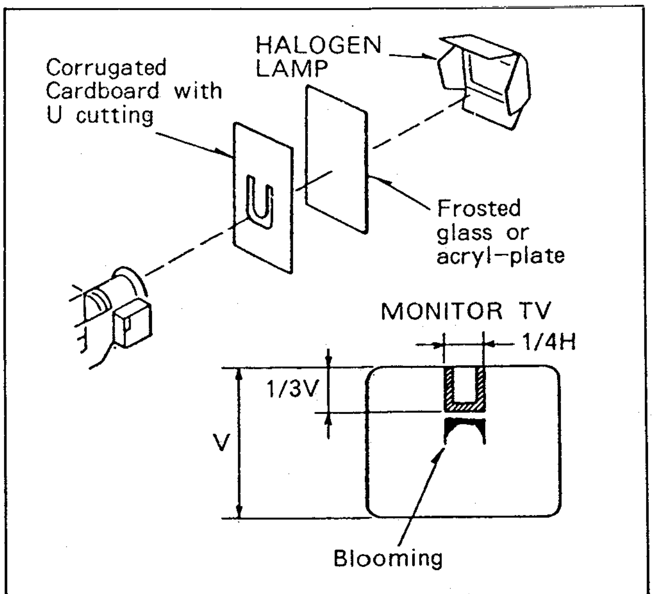
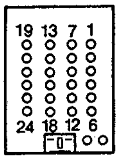

HALOGEN LAMP
Corrugated Cardboard with U cutting
Frosted glass or acryl–plate
MONITOR TV
1/4H
1/3V
V
Blooming

Fig. C11

5. Adjust the VR201 so that the blooming disappears.
6. Set the Iris to Auto.
   [SHIFT 1 + 3]

4-9. PEDESTAL LEVEL ADJUSTMENT

<table>
<tr><th rowspan="2">CMD</th><th colspan="2">ADDRESS</th><th rowspan="2">CHART</th><th rowspan="2">M. EQ.</th></tr>
<tr><th>RAM</th><th>EEPROM</th></tr>
<tr><td>18</td><td>BA</td><td>—</td><td rowspan="2"></td><td rowspan="2">OSCILLO-SCOPE</td></tr>
<tr><td>12</td><td>—</td><td>4F</td></tr>
<tr><th colspan="3">SPEC.</th><th colspan="2">TP</th></tr>
<tr><td colspan="3">A=30mV±5mV</td><td colspan="2">B302-4 (321 61617-4)
 </td></tr>
</table>

Purpose:
Set black signal level.

Symptom of Mis–adjustment:
The picture is too bright or too dark.

<Preparation>

1. Cover the lens.
   Push [SHIFT 1 + A] keys (Maximizes AGC Gain).
   Push [SHIFT 1 + 2] keys (Making IRIS manual condition).
2. Connect the oscilloscope to B302–4(321 61617–4).

<Adjustment>

Push the following keys in order.

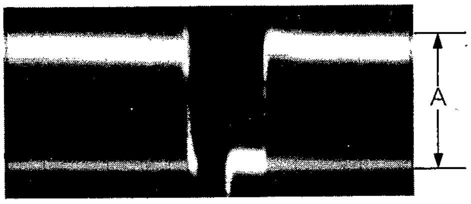
3. * [CMD], [1], [8].
   * [ADR], [B], [A].
4. * Push [INC], or [DEC] keys until the "A" level is minimized, as shown in Fig.C12

<Data Writing>

Push the following keys in order.

5. * [CMD], [1], [2]..
   * [ADR], [4], [F].
   * [SET].
6. * [SHIFT 1 + B]. (AGC is returned to Original Condition)
   * [SHIFT 1 + 3]. (IRIS is returned to Original Condition)

BEFORE ADJUSTMENT



AFTER ADJUSTMENT

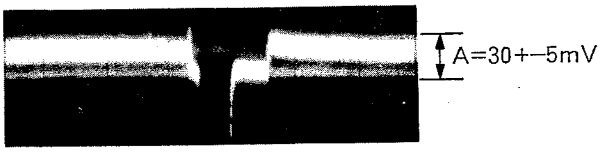
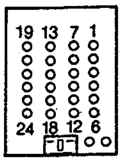


Fig. C12

4-10. AGC ADJUSTMENT

<table>
<tr><th rowspan="2">CMD</th><th colspan="2">ADDRESS</th><th rowspan="2">CHART</th><th rowspan="2">M. EQ.</th></tr>
<tr><th>RAM</th><th>EEPROM</th></tr>
<tr><td>18</td><td>BC</td><td>—</td><td rowspan="2">GRAY SCALE CHART</td><td rowspan="2">OSCILLO-SCOPE</td></tr>
<tr><td>12</td><td>—</td><td>6A</td></tr>
<tr><th colspan="3">SPEC.</th><th colspan="2">TP</th></tr>
<tr><td colspan="3">370mV±20mV</td><td colspan="2">B302-5 (321 61617-PIN 5)
B302-20 (321 61617-PIN 20)
 </td></tr>
</table>

Purpose:
Set standard signal gain.

Symptom of Mis–adjustment:
The picture is sometimes too dark or too bright.

<Reset for AGC Adjustment>

1. Push [SHIFT 1 + 2] keys (IRIS is turned to Manual Condition.)
2. Aim the camera at Gray Scale Chart.
3. Connect the Oscilloscope to B302–5 (321 61617– PIN5).

<Preset 1–Rough Adjustment>

Push the following keys in order.

4. * [CMD], [1], [8].
   * [ADR], [D], [F].
5. * Push [INC] or [DEC] keys until signal level at B302–5(321 61617–PIN5) is 370+–10mV as shown in Fig.C13

<Preset 2–Fine Adjustment>

Push the following keys in order.

6. * [CMD], [1], [8].
   * [ADR], [D], [E].
7. * Push [INC] or [DEC] keys until signal level at B302–5(321 61617–PIN5) is 370+–10mV as shown in Fig.C13

<AGC Adjustment>

Push the following keys in order.

8. * [CMD], [1], [8].
   * [ADR], [B], [C].
9. * Push [INC] or [DEC] keys until the signal level at B302–20(321 61617–PIN20) is 370+–20mV as shown in Fig.C14

<Data Writing>

Push the following keys in order.

10. * [CMD], [1], [2].
    * [ADR], [6], [A].
    * [SET].
11. * [SHIFT 1 + 3] (IRIS is return to Original Condition)

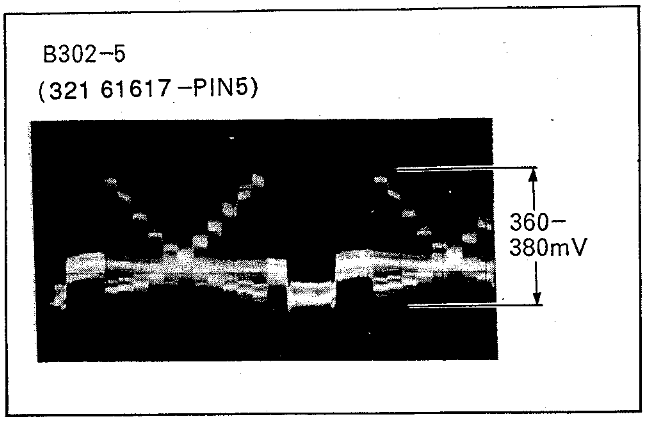


Fig. C13

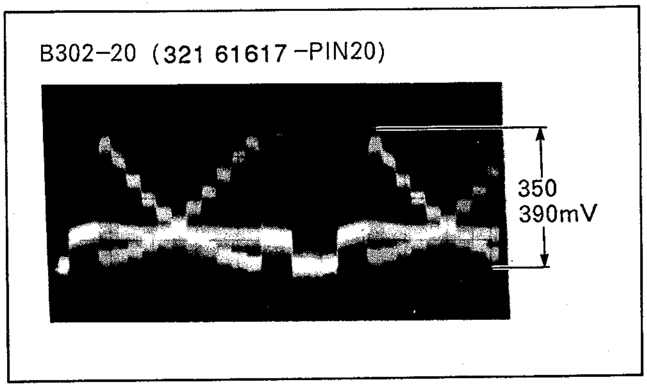
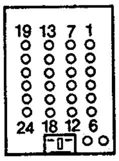


Fig. C14

4-11. A/D INPUT LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B1	—	GRAY SCALE CHART	OSCILLO-SCOPE
12	—	0F		

SPEC.	TP
1.2V±40mV	B302-5 (321 61617 PIN 5) B302-6 (321 61617 PIN6) 

Note:
Perform this adjustment after finishing the AGC ADJUSTMENT.

Purpose:
A/D converter input Level adjustment.

Symptom of Mis–adjustment:
The picture becomes too dark or too bright.

<Preset for A/D Input Level Adjustment>

1. Push [SHIFT 1 + 2] keys (IRIS is turned to Manual Condition.)
2. Aim the camera at Gray Scale Chart.
3. Connect the Oscilloscope to B302–5(VFK0734W–PIN5).

<Preset 1–Rough Adjustment>

Push the following keys in order.

4. * [CMD], [1], [8].
   * [ADR], [D], [F].
5. * Push [INC] or [DEC] keys until the signal level at B302–5(321 61617 –PIN5) is **370+ –10mV** as shown in Fig.C15

<Preset 2–Fine Adjustment>

Push the following keys in order.

6. * [CMD], [1], [8].
   * [ADR], [D], [E].
7. * Push [INC] or [DEC] keys until the signal level at B302–5(321 61617 –PIN5) is **370+ –10mV** as shown in Fig.C15

<A/D Input level Adjustment>

Push the following keys in order.

8. * [CMD], [1], [8].
   * [ADR], [B], [1].
9. * Push [INC] or [DEC] keys until the signal level at B302–6(321 61617 –PIN6) is 1.2V+–40mV as shown in Fig.C16.

<Data Writing>

Take care not to change the data while storing it into EEPROM.
Push the following keys in order.

10. * [CMD], [1], [2].
    * [ADR], [0], [F].
    * [SET].
11. Push [SHIFT 1 + 3] keys (IRIS is return to Original Condition.)

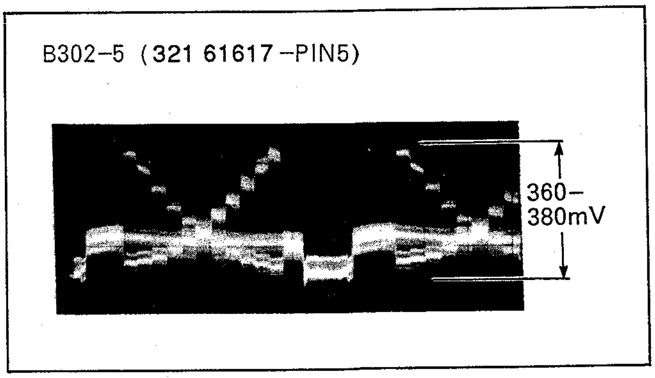


Fig. C15

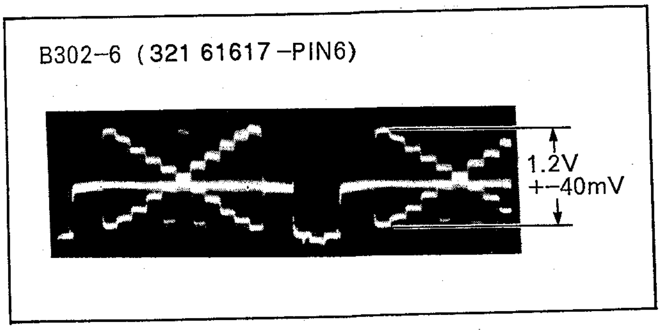
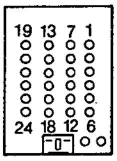


Fig. C16

4-12. ALC ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	D4	—	GRAY SCALE CHART	OSCILLO-SCOPE
02	—	2C		
SPEC.			TP	
1.20V±40mV			B302-6 (321 61617 PIN 6) 	

Note:
Perform this adjustment after finishing the AGC and A/D INPUT LEVEL ADJUSTMENT.

Purpose:
ALC level adjustment.

Symptom of Mis–adjustment:
The picture is too white or too dark.

<Preparation>

1. Set the IRIS to Auto [SHIFT 1 + 3].
2. Aim the camera at Gray Scale Chart.
3. Connect the oscilloscope to B302–6 (321 61617 – PIN6).

<Adjustment>

Push the following keys in order.

4. * [CMD], [1], [8].
   * [ADR], [D], [4].
5. * Push [INC] or [DEC] keys until the signal level at B302–6(321 61617–PIN6) is 1.2V+–40mV as shown in Fig.C17

<Data Writing>

Take care not to change the data while storing it into EEPROM.
Push the following keys in order.

6. * [CMD], [0], [2].
   * [ADR], [2], [C].
   * [SET].

B302–6 (321 61617–PIN6)

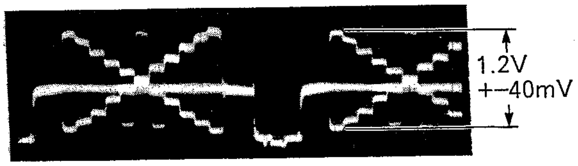
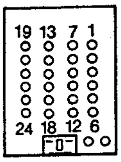


Fig. C17

4-13. Y CLIP LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B9	—		OSCILLO-SCOPE
02	—	3F		
SPEC.			TP	
V/S=7.7:3			B302-4 (321 61617 PIN 4) 	

Purpose:
Signal ratio of visual and sync becomes 7.7:3.

Symptom of Mis–adjustment:
Prevent saturation from high illumination.

<Preparation>
1. Push the [SHIFT 2 + 4]. (Set the Write FADE)
2. Connect the Oscilloscope to B302–4. (321 61617 –PIN4)

<Adjustment>

Push the following keys in order.

3. * [CMD], [1], [8].
   * [ADR], [B], [9].
4. * Push [INC] or [DEC] keys until ratio of V and S is 7.7:3 as shown in Fig.C18

<Data Writing>

Take care not to change the data while storing it into EEPROM.
Push the following keys in order.

5. * [CMD], [0], [2].
   * [ADR], [3], [F].
   * [SET].
6. * [SHIFT 2 + 1]. (FADE OFF)

B302–4 (321 61617–PIN4)

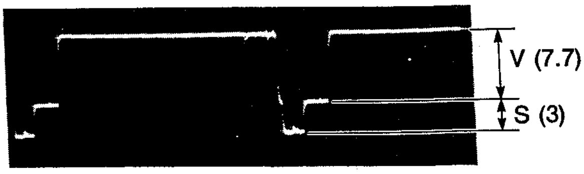


Fig. C18

4-14. INDOOR WHITE BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ
	RAM	EEPROM		
09	BB (R-Y) AB (B-Y)	—	WHITE CHART	VECTOR-SCOPE
02	—	25 (R-Y)		
12	—	25 (B-Y)		
SPEC.			TP	
CENTRE OF VECTORSCOPE			VIDEO OUT	

Purpose:
Set standard white level for each colour temperature.

Symptom of Mis–adjustment:
White is bluish or reddish.

<Preparation>
1. Connect the Video out to Vectorscope.
2. Aim the camera at white chart.
And Push [SHIFT 1 + 4] for white set.
(Please confirm, vector came to centre)

<Read Out the data for R–Y>

Push the following keys in order.

3. * [CMD], [0], [9].
* [ADR], [B], [B].
* [SET].
(When the pushed [SET] key, Data LED of EVR indicate the data of white balance for R–Y)

<Data Writing for R–Y>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

4. * [CMD], [0], [2].
* [ADR], [2], [5].
* [SET].

<Read Out the data for B–Y>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

5. * [CMD], [0], [9].
* [ADR], [A], [B].
* [SET].
(When the pushed [SET] key, Data LED of EVR indicate the data of white balance for B–Y)

<Data writing for B–Y>

Take care not change the data while storing it into the EEPROM.
Push the following keys in order.

6. * [CMD], [1], [2].
* [ADR], [2], [5].
* [SET].

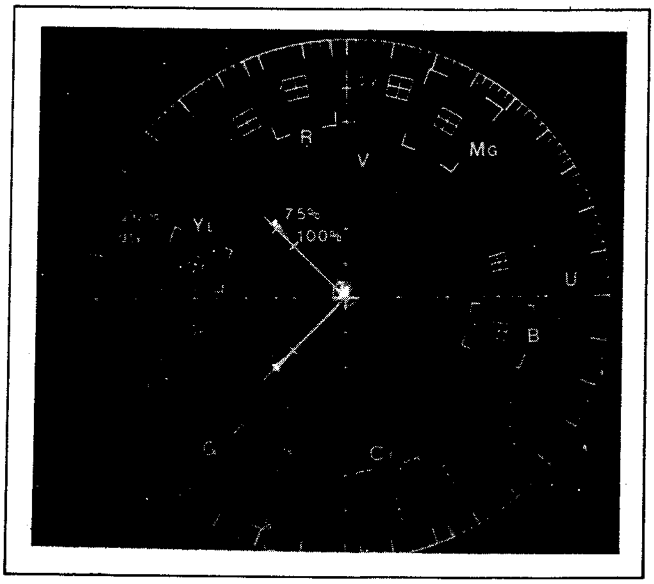


Fig. C19

4-15. COLOUR PHASE AND GAIN ADJUSTMENT (INDOOR)

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
08	95 (R-Y G) 97 (R-Y P) 94 (B-Y G) 96 (B-Y P)	—	COLOUR BAR CHART	VECTOR-SCOPE
02	—	05 (R-Y G) 15 (R-Y P)		
12	—	05 (B-Y G) 15 (B-YP)		
SPEC.			TP	
RED: 102+−3 degree/PHASE 200%+−10%/GAIN (RED/BURST) 165+−3 degree/PHASE 104%+−10%/GAIN (Yellow/BURST)			VIDEO OUT	

Note:
Be sure to carry out the Indoor White Balance Adjustment before doing this Adjustment.

1. Aim the camera at Colour Bar Chart.
2. Connect the Video out to vectorscope.

<R–Y GAIN>

(Step3 to 5 are R–Y Gain Adjustment)

Push the following keys in order.

3. * [CMD], [0], [8].
* [ADR], [9], [5].
4. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C20

<Data Writing for R−Y Gain>

Take care not change the data while storing it into the EEPROM.
Push the following keys in order.

5. * [CMD], [0], [2].
   * [ADR], [0], [5].
   * [SET].

<R−Y PHASE>
(Step6 to 8 are R−Y Phase Adjustment)

Push the following keys in order.

6. * [CMD], [0], [8].
   * [ADR], [9], [7].
7. * Push [INC] or [DEC] keys until the phase of red and yellow vectors are as close as possible to Spec. See Fig.C20.

<Data Writing for R−Y Phase>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

8. * [CMD], [0], [2].
   * [ADR], [1], [5].
   * [SET].

<B−Y Gain>
(Step9 to 11 are B−Y Gain Adjustment)

Push the following keys in order.

9. * [CMD], [0], [8].
   * [ADR], [9], [4].
10. * Push [INC] or [DEC] keys until the phase of red and yellow vectors are as close as possible to Spec. See Fig.C20.

<Data Writing for B−Y GAIN>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

11. * [CMD], [1], [2].
    * [ADR], [0], [5].
    * [SET].

<B−Y PHASE>
(Step12 to 14 are B−Y PHASE Adjustment)

Push the following keys in order.

12. * [CMD], [0], [8].
    * [ADR], [9], [6].
13. * Push [INC] or [DEC] keys until the phase of red and Yellow Vectors are as close as possible to Spec. See Fig.C20.

<Data Writing for B−Y PHASE>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

14. * [CMD], [1], [2].
    * [ADR], [1], [5].
    * [SET].
15. Repeat the Step(3) to Step(14) unit the vectors are within Spec.

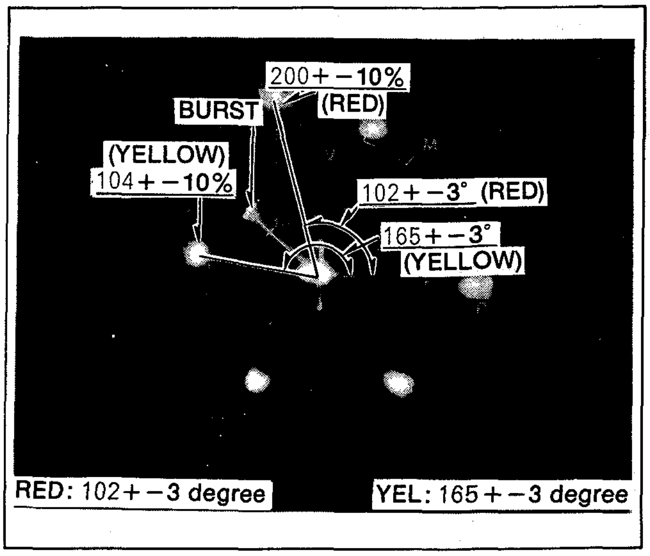


Fig. C20

4-16. OUTDOOR WHITE BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ
	RAM	EEPROM		
09	BB (R-Y) AB (B-Y)	—	WHITE CHART	VECTOR-SCOPE
02	—	21 (R-Y)		
12	—	21 (B-Y)		

SPEC.	TP
VECTOR COMES CENTRE OR WAVEFORM IS MINIMIZED	VIDEO OUT
CONDITION	
TEMPERATURE CONVERSION FILTER: Filter C12 Filter C2 IRIS: ALC	

Purpose:
Set standard white level for each colour temperature.

Symptom of Mis−adjustment:
White is bluish or reddish.

<Preparation>
1. Connect the Video Out to Vectorscope.
2. Cover the lens with colour temperature conversion filter Filter C12 and Filter C2 to imitate the Outdoor lighting.
3. Aim the camera at white chart, and push [SHIFT 1 + 4] keys for white set.
   (Confirm, vectors came, to center)

<Read Out the data for R–Y>

Push the following keys in order.

4. * [CMD], [0], [9].
   * [ADR], [B], [B].
   * [SET].
   (When the pushed [SET] key, Data LED of EVR indicate the data of white balance for R–Y)

<Data Writing for R–Y>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

5. * [CMD], [0], [2].
   * [ADR], [2], [1].
   * [SET].

<Read Out the data for B–Y>

Push the following keys in order.

6. * [CMD], [0], [9].
   * [ADR], [A], [B].
   * [SET].
   (When the pushed [SET] key, data LED of EVR indicate the data of white balance for B–Y)

<Data Writing for B–Y>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

7. * [CMD], [1], [2].
   * [ADR], [2], [1].
   * [SET].

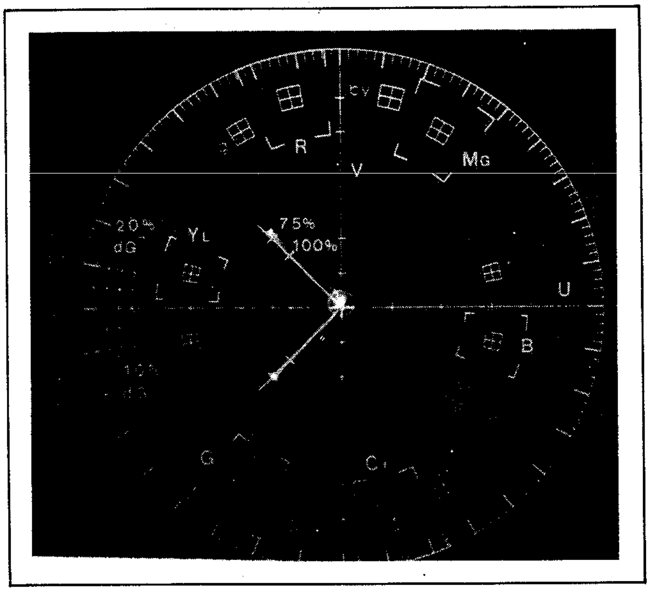


Fig. C21

4-17. COLOUR PHASE AND GAIN ADJUSTMENT (OUTDOOR)

CMD	**ADDRESS**		**CHART**	**M. EQ.**
	RAM	**EEPROM**		
08	95 (R-Y G) 97 (R-Y P) 94 (B-Y G) 96 (B-Y P)	—	COLOUR BAR CHART	VIDEO OUT
02	—	01 (R-Y G) 11 (R-Y P)		
12	—	01 (B-Y G) 11 (B-YP)		

SPEC.	**TP**
VECTORSCOPE	RED: 102+−3 degree/ PHASE, 190%+−10%/ GAIN (Red/BURST) YEL: 166+−3 degree/ PHASE, 100%+−10%/ GAIN (Yellow/BURST)

Note:
Be sure to carry out the Outdoor white balance Adjustment before doing this Adjustment.

<Preparation>
1. Connect the Video output to vectorscope.
2. Aim the camera at colour bar chart and cover the lens with colour temperature conversion filter Filter C12 and Filter C2 to imitate the outdoor lighting.

<R–Y Gain>
(Step3 to 5 are R–Y Gain Adjustment)

Push the following keys in order.

3. * [CMD], [0], [8].
   * [ADR], [9], [5].
4. * Push [INC] or [DEC] keys until the phase of red and yellow vectors are as close as possible to Spec. See Fig.C21.

<Data Writing for R–Y Gain>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

5. * [CMD], [0], [2].
   * [ADR], [0], [1].
   * [SET].

<R–Y PHASE>
(Step6 to 8 are R–Y Phase Adjustment)

Push the following keys in order.

6. * [CMD], [0], [8].
   * [ADR], [9], [7].
7. * Push the [INC] or [DEC] keys until the phase of red and yellow vectors are as close as possible to Spec. See Fig.C22

<Data Writing for R−Y Phase>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

8. * [CMD], [0], [2].
   * [ADR], [1], [1].
   * [SET].

<B−Y Gain>
(Step9 to 11 are B−Y Gain Adjustment)

Push the following keys in order.

9. * [CMD], [0], [8].
   * [ADR], [9], [4].
10. * Push [INC] or [DEC] keys until the phase of red and yellow vectors are as close as possible to Spec. See Fig.C22.

<Data Writing for B−Y Gain>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

11. * [CMD], [1], [2].
    * [ADR], [0], [1].
    * [SET].

<B−Y PHASE>
(Step12 to 14 are B−Y Phase Adjustment)

Push the following keys in order.

12. * [CMD], [0], [8].
    * [ADR], [9], [6].
13. * Push [INC] or [DEC] keys until the phase of red and yellow vectors are as close as possible to Spec. See Fig.C22.

<Data Writing for B−Y Phase>

Take care not to change the data while storing it into the EEPROM.
Push the following keys in order.

14. * [CMD], [1], [2].
    * [ADR], [1], [1].
    * [SET]
15. Repeat the Step(3) to Step(14) until vectors are within Spec. as shown in Fig.C22.

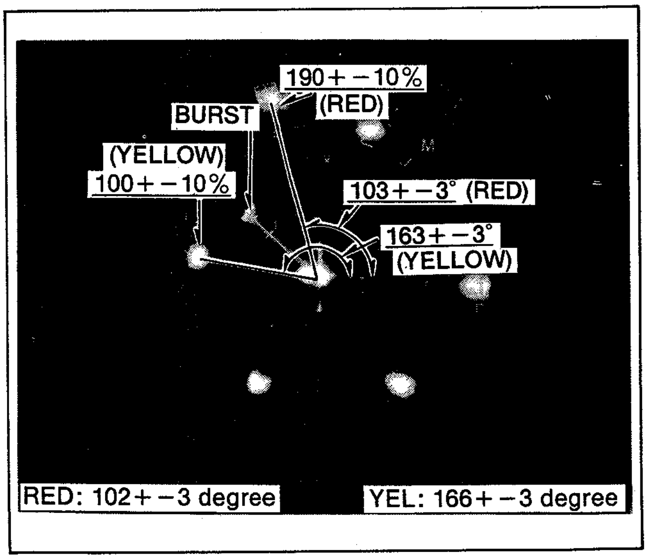


Fig. C22

4-18. DATA WRITING FOR COLOUR REPRODUCTION AND WHITE BALANCE

Purpose:
Each adjustment voltage is recorded in EEPROM as digital data. For colour reproduction adjustments such as white balance, phase and gain adjustments, the adjustments have only been performed for indoor lighting (3100 degree kelvin) and outdoor lighting (5600 degree kelvin). The EEPROM requires the data for other lighting conditions such as 3600 degree kelvin, 4500 degree kelvin and 6000 degree kelvin. In order to supply the rest of the data the following calculation has to be done and the results entered in the proper address of EEPROM.

Misentering:
White balance and colour reproduction in lighting conditions between indoor and outdoor are poor.

Note 1:
4822 209 52396 (New ROM) for EVR must be installed in EVR fixture.
Mode selector should be "A" side for M620

1. Push [SHIFT 2 + B] key simultaneously.
   (All formulas in Fig.C24, are performed and results stored in EEPROM automatically)

Note 2:
How to calculate and enter the data manually.
You can do calculation and entering the data to EEPROM manually as follows;

(For example)
ITEM : R−Y GC 36

FORMULA : ADR05+1.000(ADR01−ADR05)

EEPROM ADDRESS : 03

1) Read Out the data.
   ADR05 : Set the command to "04".
   Set the address to "05".
   Push the "SET" button.
   The number which is indicated in "DATA" LED is a data of ADR05(Address "05") for example, if indicated data is "56", substitute "56" to ADR05. (This is hexadecimal number)
   The same as above, read out the data from address "01".
   For example if data which is read out is ADR01="6C", ADR05="56" above formula becomes;
   R−Y GC 36 = 56+−1.000x(6C−56).
2) Convert the hexadecimal data into decimal number using conversion table. (Shown in Fig.C23) For example, "56" in hexadecimal is "86" in decimal from intersection of 5 and 6.
   Substitute it into the formula.
   Therefore,
   R−Y GC 36 = 86+1.000x(108−86)
   = 86+1.000x(22)
   = 108
3) Convert the result "105" to hexadecimal using conversion table (Fig.C23).
   "108" decimal is "6C" in hexadecimal.
   Write the "6C" into EEPROM address "03".
   * Set the command to [02].
   * Set the address to [03].
   * Set the data [6C].
   * Push the [SET] key.

Hexadecimal lower digit / Hexadecimal upper digic	0	1	2	3	4	5	6	7	8	9	A	b	② C	d	E	F
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
① 6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
b	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
d	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

For example: If indication of EVR is "6D" (as upper digit is "6" and lower digit is "D"), a decimal value of "109" is obtained from the intersection of ① and ② in the above table.

Fig. C23 Hexadecimal–Decimal Conversion Table

(Hexadeciaml–Decimal Conversion Table)

For some of adjustment items, calculation of hexadecimal data (indicated on LED of EVR Fixture) is needed to obtain the adjustment data.
In these cases, convert the hexadecimal value to decimal value before calculation and after calculation is finished reconvert the result to hexadecimal to obtain the adjustment data. Write the new hexadecimal adjustment data into EEPROM.
A hexadecimal–decimal conversion table is shown in Fig.C23.

Calculation for Colour Reproduction

NBR	ITEM	EEPROM ADDRESS	CMD	RESULT OF CALCULATION	FORMULA
(1)	R-Y GC 36	03 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "05" + 1.000 × (ADR "01" − ADR "05")
(2)	R-Y GC 45	02 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "05" + 0.702 × (ADR "01" − ADR "05")
(3)	R-Y GC 28	06 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "05" + 0.000 × (ADR "01" − ADR "05")
(4)	R-Y GC 60	00 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "05" + 1.000 × (ADR "01" − ADR "05")
(5)	R-Y GC 33	04 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "05" + 0.842 × (ADR "01" − ADR "05")
(6)	R-Y MAT 28	16 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "15" + 0.000 × (ADR "11" − ADR "15")
(7)	R-Y MAT 36	13 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "15" + 0.000 × (ADR "11" − ADR "15")
(8)	R-Y MAT 45	12 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "15" + 0.000 × (ADR "11" − ADR "15")
(9)	R-Y MAT 60	10 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "15" + 1.000 × (ADR "11" − ADR "15")
(10)	R-Y MAT 33	14 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "15" + 1.000 × (ADR "11" − ADR "15")
(11)	B-Y GC 28	06 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "05" + 0.000 × (ADR "01" − ADR "05")
(12)	B-Y GC 36	03 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "05" + 0.553 × (ADR "01" − ADR "05")
(13)	B-Y GC 45	02 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "05" + 0.777 × (ADR "01" − ADR "05")
(14)	B-Y GC 60	00 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "05" + 1.000 × (ADR "01" − ADR "05")
(15)	B-Y GC 33	04 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "05" + 1.000 × (ADR "01" − ADR "05")
(16)	B-Y MAT 28	16 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "15" + 0.000 × (ADR "11" − ADR "15")
(17)	B-Y MAT 36	13 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "15" + 1.000 × (ADR "11" − ADR "15")
(18)	B-Y MAT 45	12 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "15" − 1.000 × (ADR "11" − ADR "15")
(19)	B-Y MAT 60	10 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "15" + 1.000 × (ADR "11" − ADR "15")
(20)	B-Y MAT 33	14 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "15" + 0.667 × (ADR "11" − ADR "15")
(21)	R-Y WB 28	26 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "25" − 0.617 × (ADR "21" − ADR "25")
(22)	R-Y WB 33	24 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "25" + 0.432 × (ADR "21" − ADR "25")
(23)	R-Y WB 36	23 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "25" + 0.485 × (ADR "21" − ADR "25")
(24)	R-Y WB 45	22 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "25" + 1.069 × (ADR "21" − ADR "25")
(25)	R-Y WB 49	29 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "25" + 1.000 × (ADR "21" − ADR "25")
(26)	R-Y WB 60	20 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "25" + 1.288 × (ADR "21" − ADR "25")
(27)	R-Y WB LLIM	27 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "25" + 1.288 × (ADR "21" − ADR "25")
(28)	R-Y WB HLIM	28 (LOW DIGIT)	READ : 04 WRITE: 02		ADR "25" + 1.000 × (ADR "21" − ADR "25")
(29)	B-Y WB 28	26 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "25" − 0.490 × (ADR "21" − ADR "25")
(30)	B-Y WB 33	24 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "25" + 0.287 × (ADR "21" − ADR "25")
(31)	B-Y WB 36	23 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "25" + 1.160 × (ADR "21" − ADR "25")
(32)	B-Y WB 45	22 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "25" + 1.160 × (ADR "21" − ADR "25")
(33)	B-Y WB 49	29 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "25" + 1.000 × (ADR "21" − ADR "25")
(34)	B-Y WB 60	20 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "25" + 1.699 × (ADR "21" − ADR "25")
(35)	B-Y WB LLIM	27 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "25" + 1.699 × (ADR "21" − ADR "25")
(36)	B-Y WB HLIM	28 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR "25" + 1.000 × (ADR "21" − ADR "25")

Fig. C24−1

Calculation for Auto White Balance

NBR	ITEM	EEPROM ADDRESS	CMD	RESULT OF CALCULATION	FORMULA
(1)	BH 28	46 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.100 × (ADR “21” − ADR “25”)
(2)	BH 30	45 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.850 × (ADR “21” − ADR “25”)
(3)	BH 36	43 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.282 × (ADR “21” − ADR “25”)
(4)	BH 45	42 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.077 × (ADR “21” − ADR “25”)
(5)	BH 51	41 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.765 × (ADR “21” − ADR “25”)
(6)	BH 60	40 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.949 × (ADR “21” − ADR “25”)
(7)	BH TR	48 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.077 × (ADR “21” − ADR “25”)
(8)	BH SKY	47 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.974 × (ADR “21” − ADR “25”)
(9)	BL 28	36 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.140 × (ADR “21” − ADR “25”)
(10)	BL 30	35 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.140 × (ADR “21” − ADR “25”)
(11)	BL 36	33 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.385 × (ADR “21” − ADR “25”)
(12)	BL 45	32 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.765 × (ADR “21” − ADR “25”)
(13)	BL 51	31 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.949 × (ADR “21” − ADR “25”)
(14)	BL 60	30 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 1.974 × (ADR “21” − ADR “25”)
(15)	BL TR	38 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.765 × (ADR “21” − ADR “25”)
(16)	BL SK	37 (HIGH DIGIT)	READ : 14 WRITE: 12		DATA “00”
(17)	RH 28	46 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.820 × (ADR “21” − ADR “25”)
(18)	RH 30	45 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.627 × (ADR “21” − ADR “25”)
(19)	RH 36	43 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.157 × (ADR “21” − ADR “25”)
(20)	RH 45	42 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.808 × (ADR “21” − ADR “25”)
(21)	RH 51	41 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.608 × (ADR “21” − ADR “25”)
(22)	RH 60	40 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.608 × (ADR “21” − ADR “25”)
(23)	RH TR	48 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.142 × (ADR “21” − ADR “25”)
(24)	RH SK	47 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.608 × (ADR “21” − ADR “25”)
(25)	Rxisth	4A (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.667 × (ADR “21” − ADR “25”)
(26)	RL 28	36 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.627 × (ADR “21” − ADR “25”)
(27)	RL 30	35 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.157 × (ADR “21” − ADR “25”)
(28)	RL 36	33 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.608 × (ADR “21” − ADR “25”)
(29)	RL 45	32 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.142 × (ADR “21” − ADR “25”)
(30)	RL 51	31 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.523 × (ADR “21” − ADR “25”)
(31)	RL 60	30 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.523 × (ADR “21” − ADR “25”)
(32)	RL TR	38 (LOW DIGIT)	READ : 04 WRITE: 02		DATA “00”
(33)	RL SK	37 (LOW DIGIT)	READ : 04 WRITE: 02		DATA “00”

Fig. C24–2

(Adjustment Items required after replacing the individual components.)

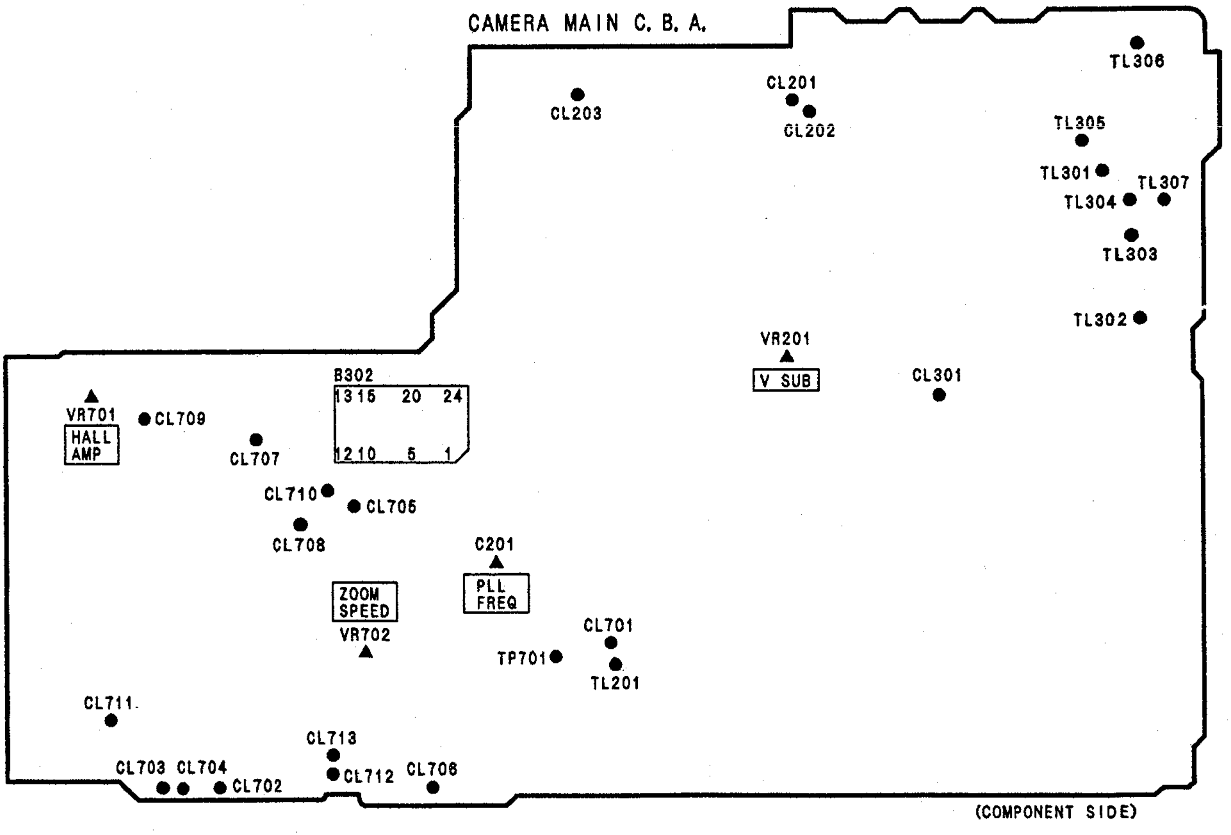
When following parts are replaced, check the following adjustment items and adjust if necessary.

NO.	Replaced Parts	Adjustment point or check points which are required			
		ALL ADJ. Points	Colour Reproduction	Focus & Zoom Encoder	Other ADJ.
1	IC311(EEPROM)	○			
2	CCD Unit Individual		○	○	
3	CAMERA MAIN C.B.A.	○	○	○	
4	Lens Unit			○	Hole Amp
5	Focus Encoder C.B.A			○	
6	IC204				CDS Gain
7	IC703				Hole Amp
8	other				

Fig. C32

○ mark ....Adjustment may be required.
△ mark ....Confirm adjustment necessity and adjust it, if necessary.
Colour Reproduction ....WB, Colour gain, colour phase adjustments.

LOCATION OF TEST POINTS & CONTROLS

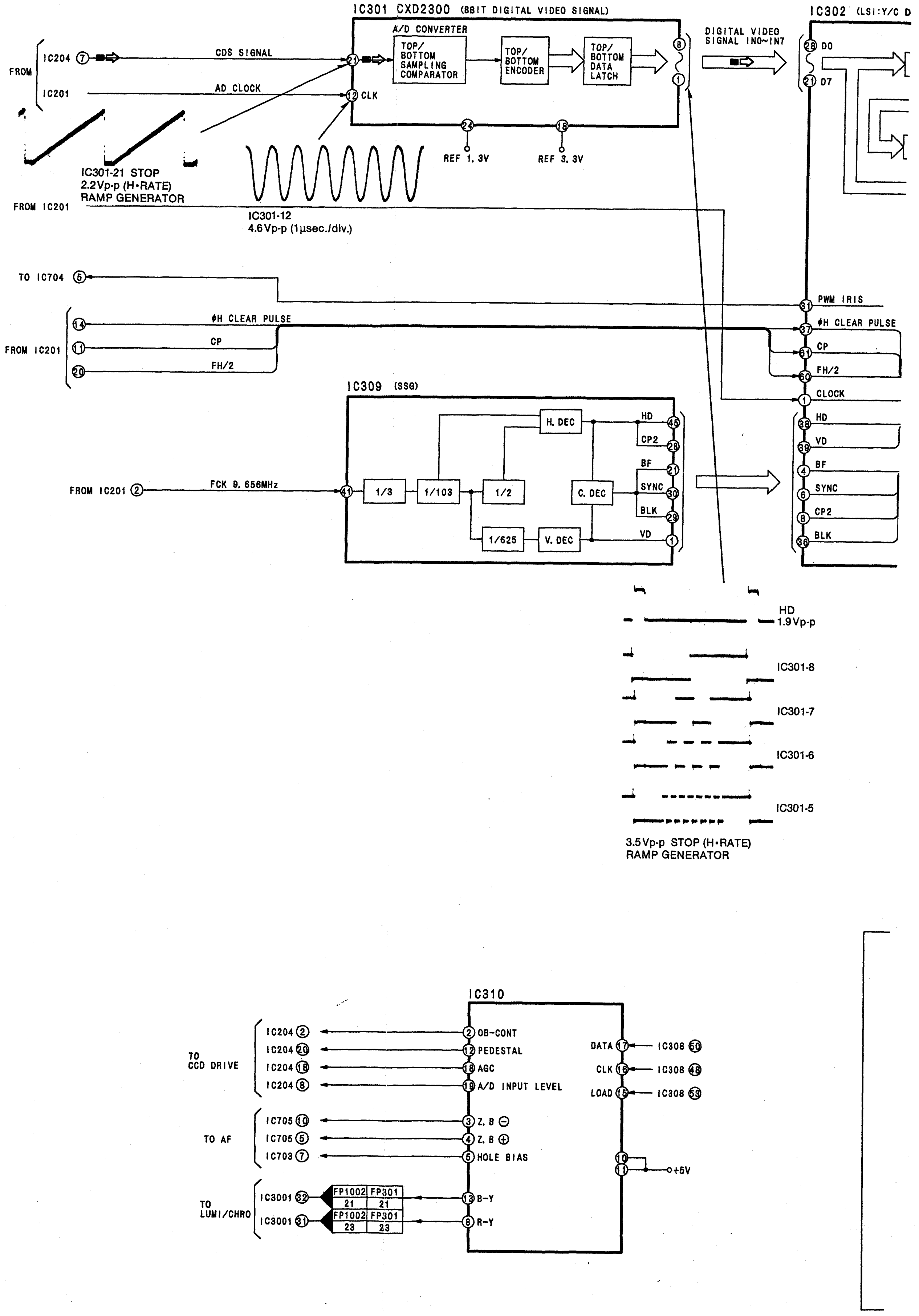

CAMERA MAIN C. B. A.
TL306
CL201
CL203
CL202
TL305
TL301
TL307
TL304
TL303
TL302
VR201
V SUB
CL301
B302
13 15 20 24
12 10 5 1
VR701
HALL AMP
CL709
CL707
CL710
CL705
CL708
C201
PLL FREQ
ZOOM SPEED
VR702
CL701
TP701
TL201
CL711
CL713
CL703 CL704
CL702
CL712
CL706
(COMPONENT SIDE)

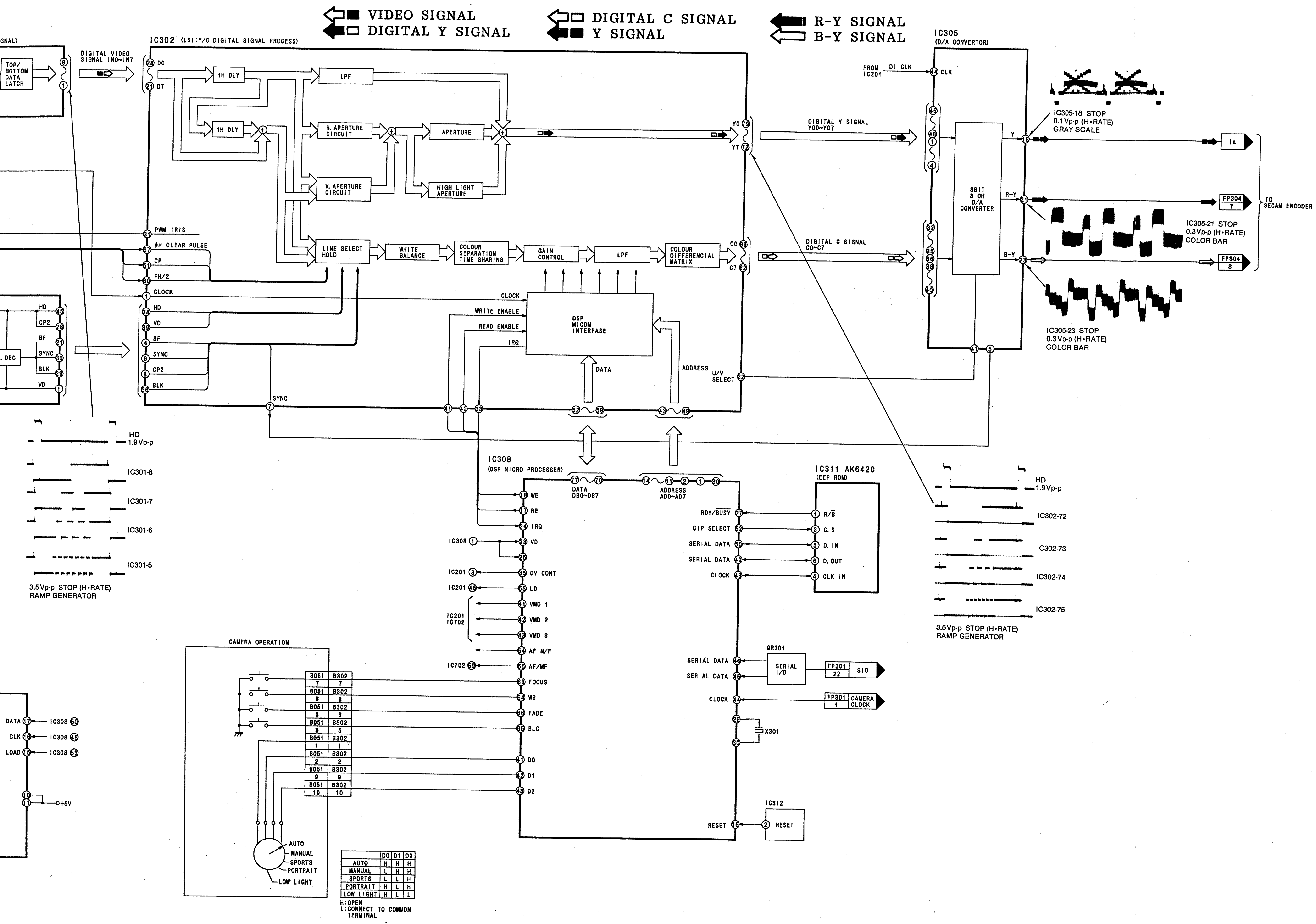
SECTION 3
BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

3-1. ABBREVIATIONS

INITIAL/LOGO		ABBREVIATION
A	A·DUB	AUDIO DUBBING
	A·ORP	AUDIO OVERLAP PULSE
	A·TR	AUTO TRACKING
	AD REC	AUDIO DELAYD REC
	AF CS	AF CHIP SELECT
	AFADE	AUDIO FADE
	ALC CONT	ALC CONTROL
	ALC MAIN	ALC DRIVE
	ART·V	ARTIFICIAL VERTICAL SYNC SIGNAL
B	B-Y KB	B-Y CARRIER BALANCE
	BF	BURST FLAG PULSE
	BLK	BLANKING
	BM	BALANCED MODULATOR
	BUF or BF	BUFFER
C	CAPVM	CAPSTAN MOTOR CURRENT
	CCW	COUNTER CLOCK WISE
	CDS	CCD OUTPUT SIGINAL
	CFM 1 ~4	CHROMA FIELD MEMORY
	CGC	CHROMA GAIN CONTROL
	CHR MIX	CHARACTER MIX
	CLK or CL	CLOCK
	CMEM	CHROMA MEMORY SIGNAL
	CMO	CHROMA MEMORY OUTPUT
	CP	CLAMP PULSE
	CPOB	OB CLAMP PULSE
	CS	CHIP SELECT
	CW	CLOCK WISE
	CYLVM	CYLINDER MOTOR CURRENT
D	DL	DELAY LINE
	DS1	DOUBLE SAMPLING PULSE 1
	DS2	DOUBLE SAMPLING PULSE 2
	DSP	DIGITAL SIGNAL PROCESS
	E·ZOOM	ELECTRIC ZOOM
E	ECM	ELECTRIC CONDENSER MIC
	EE CS	EEPROM CHIP SELECT
	EECS	EEPROM CHIP SELECT
	ENV·DET	ENVELOPE LEVEL DETECT
F	F·ENC	FOCUS ENCODER
	FM MUTE	FM AUDIO MUTE
	FMD REC	FM AUDIO DELAY REC
	FMOEM	FIELD MEMORY ENABLE
	FNO	F VALUE
H	H·CLR	HIGH CLEAR
	HBR·SET	HIGH BRIGHT SET
	HD	HORIZONTAL DRIVE PULSE
	HEX	HEXADECIMAL
	HLT	HIGHT BRIGHT SIGNAL
I	INTER	INTERVAL RECORDING
	IOU	R-Y ANALOGUE SIGNAL OUTPUT
	IOV	B-Y ANALOGUE SIGNAL OUTPUT
	IRQ	INTERRUPT REQUEST
L	LD	LOAD PULSE
	LED CONT	LED CONTROL
	LI BATT	LITHIUM BATTERY
	LSB	LEAST SIGINIFICANT BIT
M	MD	MODULATOR
	MF·F	MANUAL FOCUS FAR
	MF·N	MANUAL FOCUS NEAR
	MSB	MOST SIGNIFICANT BIT
N	N·DE	NON LINER DE-EMPHASIS
	N·LE	NON LINER EMPHSIS
	NRD	NON REC DATA
	NRD. BLK	NON REC DATA BLANKING
	NRE	READ ENABLE INPUT(LOW ACTIVE)
	NWE	WRITE ENABLE INPUT(LOW ACTIVE)
O	OE	OUTPUT ENABLE
	OP2	OPERATINAL AMP OUTPUT 2
	OSD	ON SCREEN DISPLAY
	OSD	ON SCREEN DISPLAY
P	PCBM(B-Y)	B-Y CARRIER BALANCE
	PCBM(R-Y)	R-Y CARRIER BALANCE
	PEDE CONT	PEDESTAL CONTROL
	POR	POWER ON RESET
	PREBLK	PRE BLANKING
	PWM	PULSE WIDTH MODULATOR
R	R/B	READY/BUSY
	R-Y KB	R-Y CARRIER BALANCE
	RAD	READ ADDRESS DATA
	RAE	READ ADDRESS ENABLE
	RE	READ ENANLE
	RE	ROTARY ERASE HEAD
	RERASE	ROTARY ERASE HEAD
	RSTR	RESET READ
	RSTW	RESET WRITE
S	SBD	SERIAL DATA
	SBO	SERIAL OUTPUT
	SDET	S-VHS DETECT
	STAB	S-VHS TAB SWITCH
T	TL	TORQUE LIMIT
	TRFIX	TRACKING FIX
U	UVSEL	U/V SELCT
V	VCO	VOLTAGE CONTROL OSCILLTOR
	VCTL	Φ VOLTAGE CHARGE CONTROL
	VD	VERTICAL DRIVE PULSE
	VDREC	VIDEO DELAYED REC
	VMD	VELOCITY MODE DATA
	VORP	VIDEO OVERLAP
	VRO	REFEREMCE VOLTAGE OUTPUT
W	WADE	WRITE ADDRESS ENABLE
	WE	WRITE ENABLE
Y	YNC	NOISE CANCELER (LUMINANCE)
	YNR	NOISE REDUCTION(LUMINANCE)
Z	Z·ENC	ZOOM ENCODER
	Z-MIC	ZOOM MIC

3-2. PROCESS BLOCK DIAGRAM

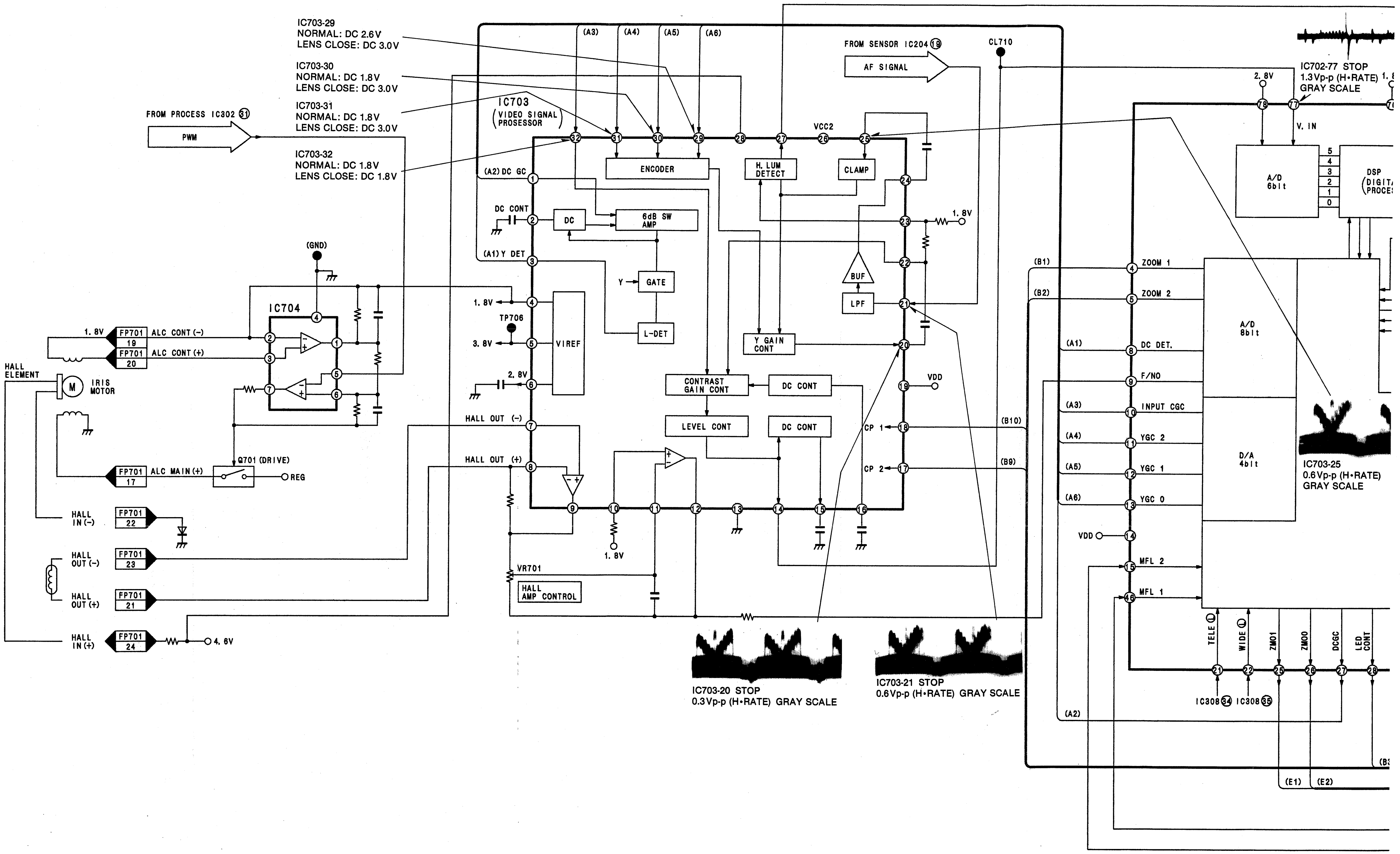

IC301 CXD2300 (8BIT DIGITAL VIDEO SIGNAL)
A/D CONVERTER
TOP/ BOTTOM SAMPLING COMPARATOR
TOP/ BOTTOM ENCODER
TOP/ BOTTOM DATA LATCH
FROM IC204 ⑦
IC201
CDS SIGNAL
AD CLOCK
CLK
REF 1. 3V
REF 3. 3V
IC301-21 STOP
2.2Vp-p (H•RATE)
RAMP GENERATOR
FROM IC201
IC301-12
4.6Vp-p (1μsec./div.)
DIGITAL VIDEO SIGNAL IN0~IN7
IC302 (LSI:Y/C D
D0
D7
TO IC704 ⑤
PWM IRIS
FROM IC201
ϕH CLEAR PULSE
CP
FH/2
CLOCK
HD
VD
BF
SYNC
CP2
BLK
IC309 (SSG)
FROM IC201 ②
FCK 9. 656MHz
1/3
1/103
1/2
1/625
H. DEC
C. DEC
V. DEC
HD
CP2
BF
SYNC
BLK
VD
HD
1.9Vp-p
IC301-8
IC301-7
IC301-6
IC301-5
3.5Vp-p STOP (H•RATE)
RAMP GENERATOR
IC310
TO CCD DRIVE
IC204 ②
IC204 ⑳
IC204 ⑱
IC204 ⑧
OB-CONT
PEDESTAL
AGC
A/D INPUT LEVEL
TO AF
IC705 ⑩
IC705 ⑤
IC703 ⑦
Z. B ⊖
Z. B ⊕
HOLE BIAS
TO LUMI/CHRO
IC3001 (32)
IC3001 (31)
FP1002 21
FP301 21
FP1002 23
FP301 23
B-Y
R-Y
DATA ⑰
CLK ⑯
LOAD ⑮
IC308 (50)
IC308 (48)
IC308 (53)
+5V


VIDEO SIGNAL
DIGITAL Y SIGNAL
DIGITAL C SIGNAL
Y SIGNAL
R-Y SIGNAL
B-Y SIGNAL
GNAL)
TOP/ BOTTOM DATA LATCH
DIGITAL VIDEO SIGNAL IN0~IN7
IC302 (LSI:Y/C DIGITAL SIGNAL PROCESS)
D0
D7
1H DLY
1H DLY
LPF
H. APERTURE CIRCUIT
APERTURE
V. APERTURE CIRCUIT
HIGH LIGHT APERTURE
Y0
Y7
PWM IRIS
ϕH CLEAR PULSE
CP
FH/2
CLOCK
HD
VD
BF
SYNC
CP2
BLK
LINE SELECT HOLD
WHITE BALANCE
COLOUR SEPARATION TIME SHARING
GAIN CONTROL
LPF
COLOUR DIFFERENCIAL MATRIX
C0
C7
CLOCK
WRITE ENABLE
READ ENABLE
IRQ
DSP MICOM INTERFASE
DATA
ADDRESS
U/V SELECT
SYNC
HD
CP2
BF
SYNC
BLK
VD
. DEC
HD 1.9Vp-p
IC301-8
IC301-7
IC301-6
IC301-5
3.5Vp-p STOP (H•RATE) RAMP GENERATOR
DIGITAL Y SIGNAL Y00~Y07
DIGITAL C SIGNAL C0~C7
IC305 (D/A CONVERTOR)
FROM IC201
DI CLK
CLK
8BIT 3 CH D/A CONVERTER
Y
R-Y
B-Y
IC305-18 STOP 0.1Vp-p (H•RATE) GRAY SCALE
IC305-21 STOP 0.3Vp-p (H•RATE) COLOR BAR
IC305-23 STOP 0.3Vp-p (H•RATE) COLOR BAR
Ja
FP304 7
FP304 8
TO SECAM ENCODER
IC308 (DSP NICRO PROCESSER)
DATA DB0~DB7
ADDRESS AD0~AD7
WE
RE
IRQ
IC308
VD
IC201
OV CONT
IC201
LD
IC201 IC702
VMD 1
VMD 2
VMD 3
AF N/F
IC702
AF/MF
FOCUS
WB
FADE
BLC
D0
D1
D2
RDY/BUSY
CIP SELECT
SERIAL DATA
SERIAL DATA
CLOCK
SERIAL DATA
SERIAL DATA
CLOCK
RESET
IC311 AK6420 (EEP ROM)
R/B
C. S
D. IN
D. OUT
CLK IN
QR301
SERIAL I/O
FP301 22
SIO
FP301 1
CAMERA CLOCK
X301
IC312
RESET
HD 1.9Vp-p
IC302-72
IC302-73
IC302-74
IC302-75
3.5Vp-p STOP (H•RATE) RAMP GENERATOR
CAMERA OPERATION
B051 7
B302 7
B051 8
B302 8
B051 3
B302 3
B051 5
B302 5
B051 1
B302 1
B051 2
B302 2
B051 9
B302 9
B051 10
B302 10
AUTO
MANUAL
SPORTS
PORTRAIT
LOW LIGHT
DATA
CLK
LOAD
IC308
IC308
IC308
+5V

	D0	D1	D2
AUTO	H	H	H
MANUAL	L	H	H
SPORTS	L	L	H
PORTRAIT	H	L	H
LOW LIGHT	H	L	L

H:OPEN
L:CONNECT TO COMMON TERMINAL

3-3. AUTO FOCUS BLOCK DIAGRAM



IC703-29
NORMAL: DC 2.6V
LENS CLOSE: DC 3.0V

IC703-30
NORMAL: DC 1.8V
LENS CLOSE: DC 3.0V

IC703-31
NORMAL: DC 1.8V
LENS CLOSE: DC 3.0V

IC703-32
NORMAL: DC 1.8V
LENS CLOSE: DC 1.8V

IC702-77 STOP
1.3Vp-p (H•RATE)
GRAY SCALE

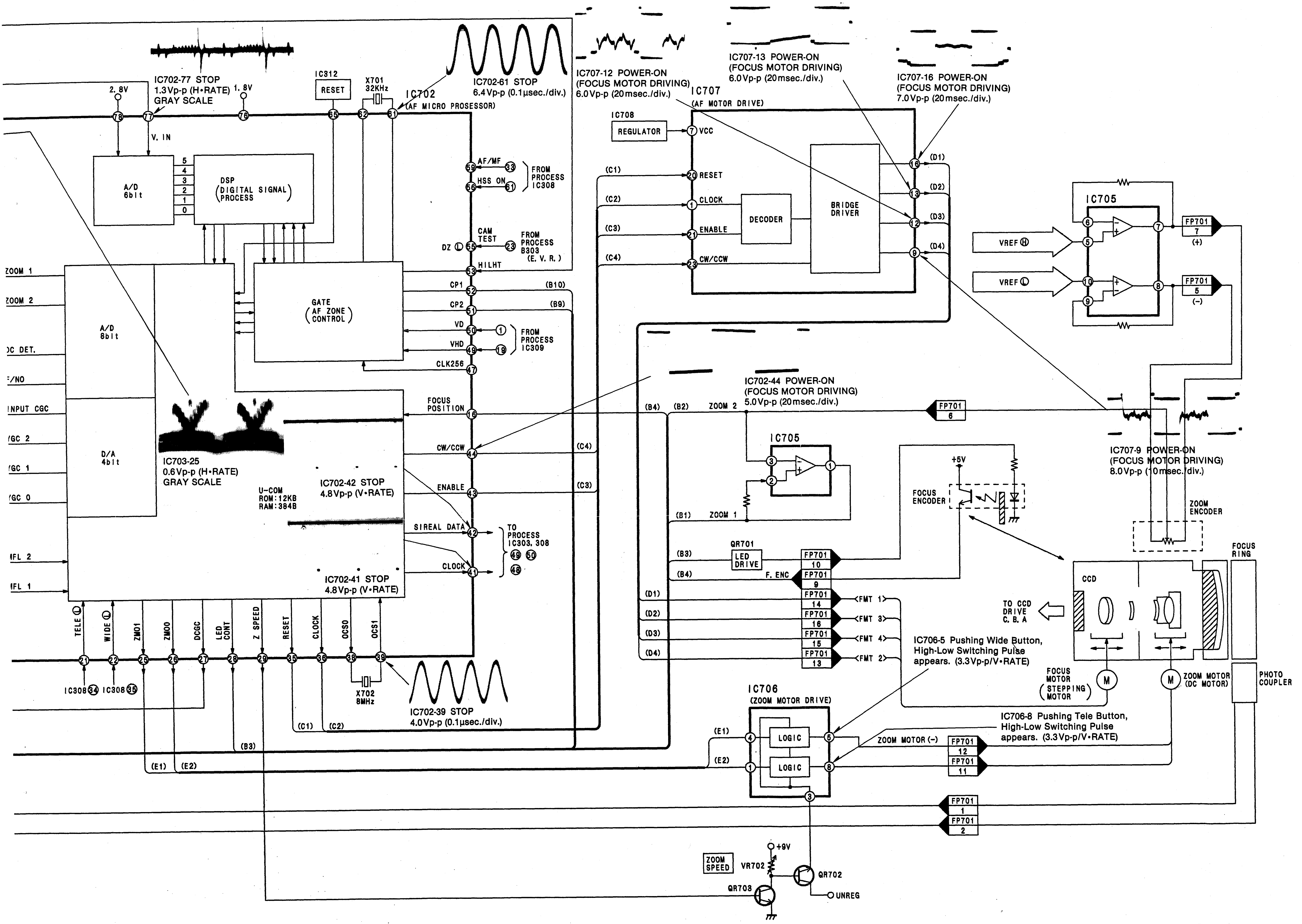
IC703-25
0.6Vp-p (H•RATE)
GRAY SCALE

IC703-20 STOP
0.3Vp-p (H•RATE) GRAY SCALE

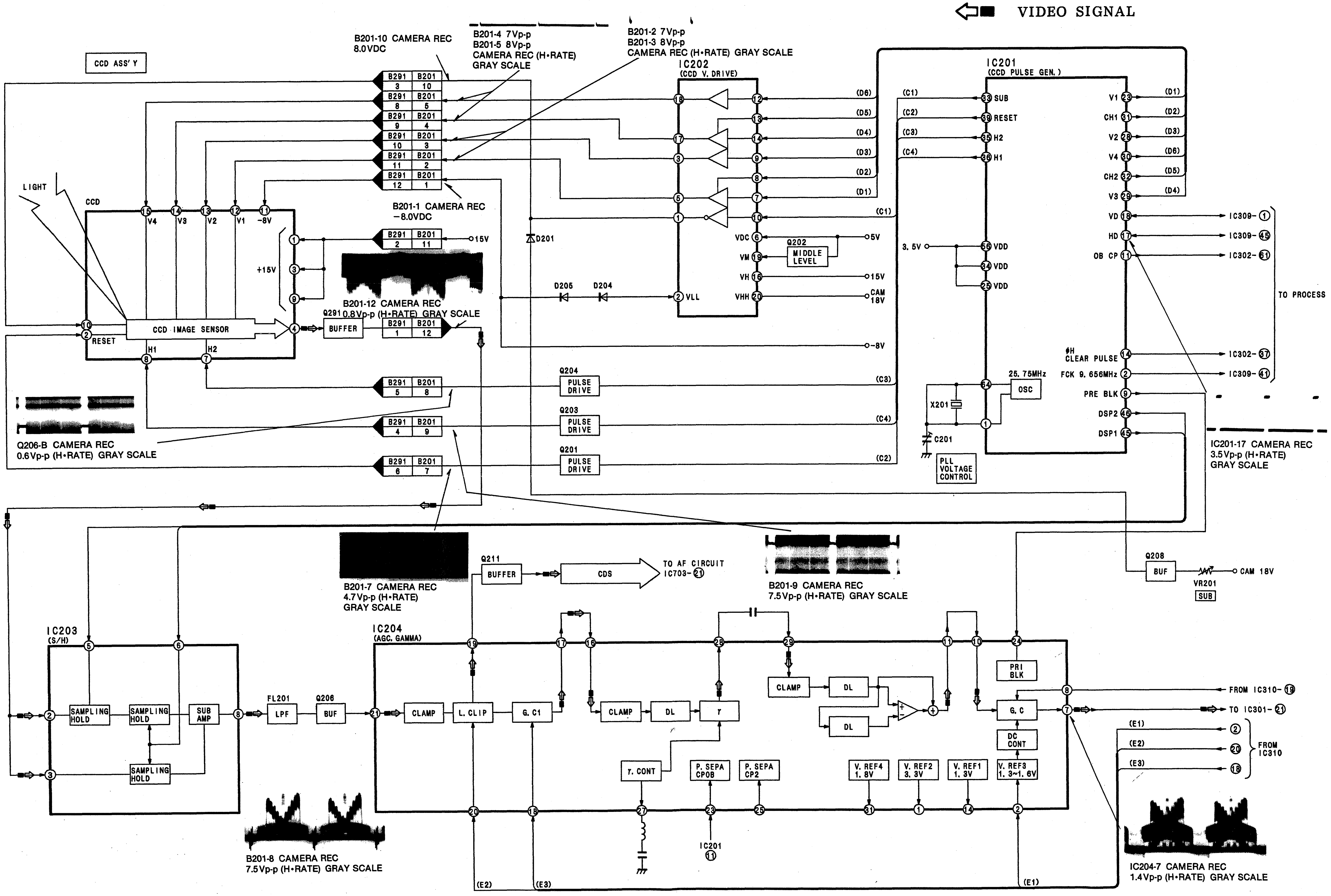
IC703-21 STOP
0.6Vp-p (H•RATE) GRAY SCALE

FROM PROCESS IC302 ㉛
PWM
IC703
(VIDEO SIGNAL PROSESSOR)
(A3)
(A4)
(A5)
(A6)
FROM SENSOR IC204 ⑲
AF SIGNAL
CL710
VCC2
ENCODER
H. LUM DETECT
CLAMP
(A2) DC GC
DC CONT
DC
6dB SW AMP
1.8V
(A1) Y DET
Y
GATE
BUF
LPF
L-DET
Y GAIN CONT
(GND)
IC704
1.8V
FP701 19
ALC CONT (-)
FP701 20
ALC CONT (+)
HALL ELEMENT
IRIS MOTOR
M
TP706
3.8V
VIREF
2.8V
CONTRAST GAIN CONT
DC CONT
VDD
LEVEL CONT
DC CONT
HALL OUT (-)
HALL OUT (+)
CP 1
CP 2
FP701 17
ALC MAIN (+)
Q701 (DRIVE)
REG
HALL IN (-)
FP701 22
HALL OUT (-)
FP701 23
HALL OUT (+)
FP701 21
HALL IN (+)
FP701 24
4.6V
VR701
HALL AMP CONTROL
2.8V
V. IN
A/D 6bit
DSP (DIGITAL PROCES
(B1)
(B2)
ZOOM 1
ZOOM 2
(A1)
DC DET.
F/NO
(A3)
INPUT CGC
(A4)
YGC 2
(A5)
YGC 1
(A6)
YGC 0
VDD
MFL 2
MFL 1
(B10)
(B9)
A/D 8bit
D/A 4bit
TELE Ⓛ
WIDE Ⓛ
ZMO1
ZMO0
DCGC
LED CONT
IC308 ㉞
IC308 ㉟
(A2)
(E1)
(E2)

Back Page:
ABBREVIATION & PROCESS Section


IC702-77 STOP
1.3Vp-p (H•RATE)
GRAY SCALE
2.8V
1.8V
V. IN
IC312
RESET
X701
32KHz
IC702
(AF MICRO PROSESSOR)
IC702-61 STOP
6.4Vp-p (0.1µsec./div.)
A/D
6bit
DSP
(DIGITAL SIGNAL PROCESS)
5
4
3
2
1
0
AF/MF
HSS ON
FROM PROCESS IC308
CAM TEST
FROM PROCESS B303 (E. V. R.)
DZ
HILHT
CP1
CP2
VD
VHD
CLK256
FROM PROCESS IC309
GATE
(AF ZONE CONTROL)
(B10)
(B9)
ZOOM 1
ZOOM 2
DC DET.
/NO
INPUT CGC
GC 2
GC 1
GC 0
FL 2
FL 1
A/D
8bit
D/A
4bit
IC703-25
0.6Vp-p (H-RATE)
GRAY SCALE
U-COM
ROM:12KB
RAM:384B
IC702-42 STOP
4.8Vp-p (V•RATE)
IC702-41 STOP
4.8Vp-p (V•RATE)
FOCUS POSITION
CW/CCW
ENABLE
SIREAL DATA
CLOCK
TO PROCESS IC303, 308
(C4)
(C3)
TELE
WIDE
ZM01
ZM00
DCGC
LED CONT
Z SPEED
RESET
CLOCK
OCS0
OCS1
IC308
IC308
X702
8MHz
IC702-39 STOP
4.0Vp-p (0.1µsec./div.)
(C1)
(C2)
(B3)
(E1)
(E2)
IC707-12 POWER-ON
(FOCUS MOTOR DRIVING)
6.0Vp-p (20msec./div.)
IC707-13 POWER-ON
(FOCUS MOTOR DRIVING)
6.0Vp-p (20msec./div.)
IC707-16 POWER-ON
(FOCUS MOTOR DRIVING)
7.0Vp-p (20msec./div.)
IC707
(AF MOTOR DRIVE)
IC708
REGULATOR
VCC
RESET
CLOCK
ENABLE
CW/CCW
DECODER
BRIDGE DRIVER
(D1)
(D2)
(D3)
(D4)
IC705
VREF H
VREF L
FP701 7 (+)
FP701 5 (−)
IC702-44 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)
(B4)
(B2)
ZOOM 2
FP701 6
IC705
(B1)
ZOOM 1
+5V
FOCUS ENCODER
IC707-9 POWER-ON
(FOCUS MOTOR DRIVING)
8.0Vp-p (10msec./div.)
ZOOM ENCODER
FOCUS RING
QR701
LED DRIVE
(B3)
(B4)
F. ENC
FP701 10
FP701 9
FP701 14
FP701 16
FP701 15
FP701 13
<FMT 1>
<FMT 3>
<FMT 4>
<FMT 2>
TO CCD DRIVE C. B. A
CCD
IC706-5 Pushing Wide Button,
High-Low Switching Pulse
appears. (3.3Vp-p/V•RATE)
FOCUS MOTOR (STEPPING MOTOR)
M
ZOOM MOTOR (DC MOTOR)
PHOTO COUPLER
IC706
(ZOOM MOTOR DRIVE)
LOGIC
LOGIC
IC706-8 Pushing Tele Button,
High-Low Switching Pulse
appears. (3.3Vp-p/V•RATE)
ZOOM MOTOR (−)
FP701 12
FP701 11
FP701 1
FP701 2
+9V
ZOOM SPEED
VR702
QR702
QR703
UNREG

3-4. CCD DRIVE BLOCK DIAGRAM


VIDEO SIGNAL
CCD ASS'Y
LIGHT
CCD
V4
V3
V2
V1
-8V
+15V
CCD IMAGE SENSOR
RESET
H1
H2
BUFFER
Q291
B291
B201
15V
D201
D205
D204
IC202
(CCD V. DRIVE)
VDC
VM
VH
VHH
VLL
Q202
MIDDLE LEVEL
5V
15V
CAM 18V
-8V
Q204
PULSE DRIVE
Q203
PULSE DRIVE
Q201
PULSE DRIVE
(D1)
(D2)
(D3)
(D4)
(D5)
(D6)
(C1)
(C2)
(C3)
(C4)
IC201
(CCD PULSE GEN.)
SUB
RESET
H2
H1
VDD
3. 5V
V1
CH1
V2
V4
CH2
V3
VD
HD
OB CP
ϕH CLEAR PULSE
FCK 9. 656MHz
PRE BLK
DSP2
DSP1
25. 75MHz
OSC
X201
C201
PLL VOLTAGE CONTROL
IC309-①
IC309-㊺
IC302-(61)
IC302-㊲
IC309-㊶
TO PROCESS
IC203
(S/H)
SAMPLING HOLD
SUB AMP
FL201
LPF
Q206
BUF
Q211
BUFFER
CDS
TO AF CIRCUIT IC703-㉑
IC204
(AGC, GAMMA)
CLAMP
L. CLIP
G. C1
DL
γ
γ. CONT
P. SEPA CPOB
P. SEPA CP2
V. REF4 1. 8V
V. REF2 3. 3V
V. REF1 1. 3V
V. REF3 1. 3~1. 6V
PRI BLK
G. C
DC CONT
IC201 ⑪
Q208
BUF
VR201
SUB
CAM 18V
FROM IC310-⑲
TO IC301-㉑
(E1)
(E2)
(E3)
FROM IC310

B201-10 CAMERA REC 8.0VDC

B201-4 7Vp-p
B201-5 8Vp-p
CAMERA REC (H·RATE)
GRAY SCALE

B201-2 7Vp-p
B201-3 8Vp-p
CAMERA REC (H·RATE) GRAY SCALE

B201-1 CAMERA REC
−8.0VDC

B201-12 CAMERA REC
0.8Vp-p (H·RATE) GRAY SCALE

Q206-B CAMERA REC
0.6Vp-p (H·RATE) GRAY SCALE

IC201-17 CAMERA REC
3.5Vp-p (H·RATE)
GRAY SCALE

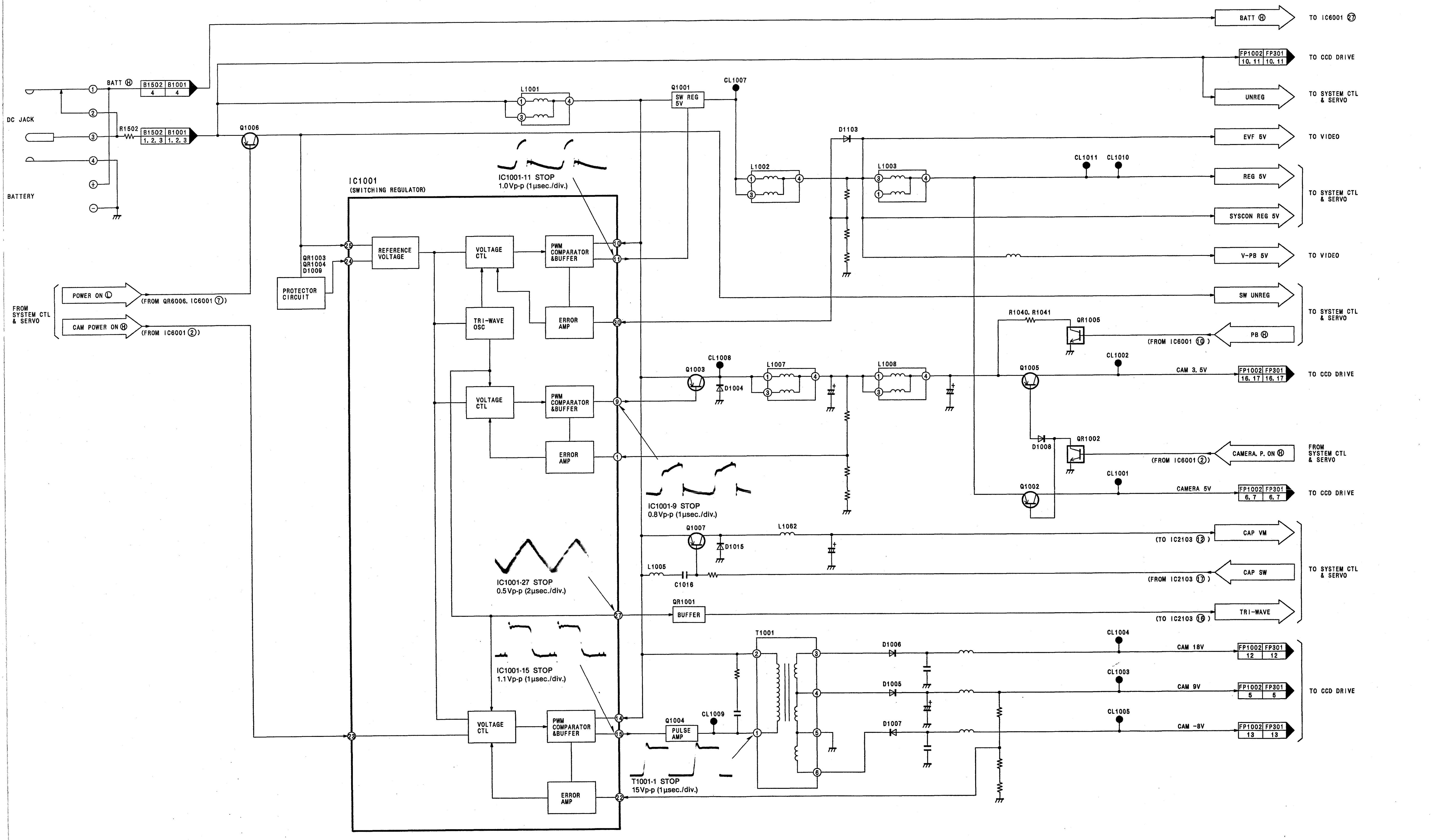
B201-7 CAMERA REC
4.7Vp-p (H·RATE)
GRAY SCALE

B201-9 CAMERA REC
7.5Vp-p (H·RATE) GRAY SCALE

B201-8 CAMERA REC
7.5Vp-p (H·RATE) GRAY SCALE

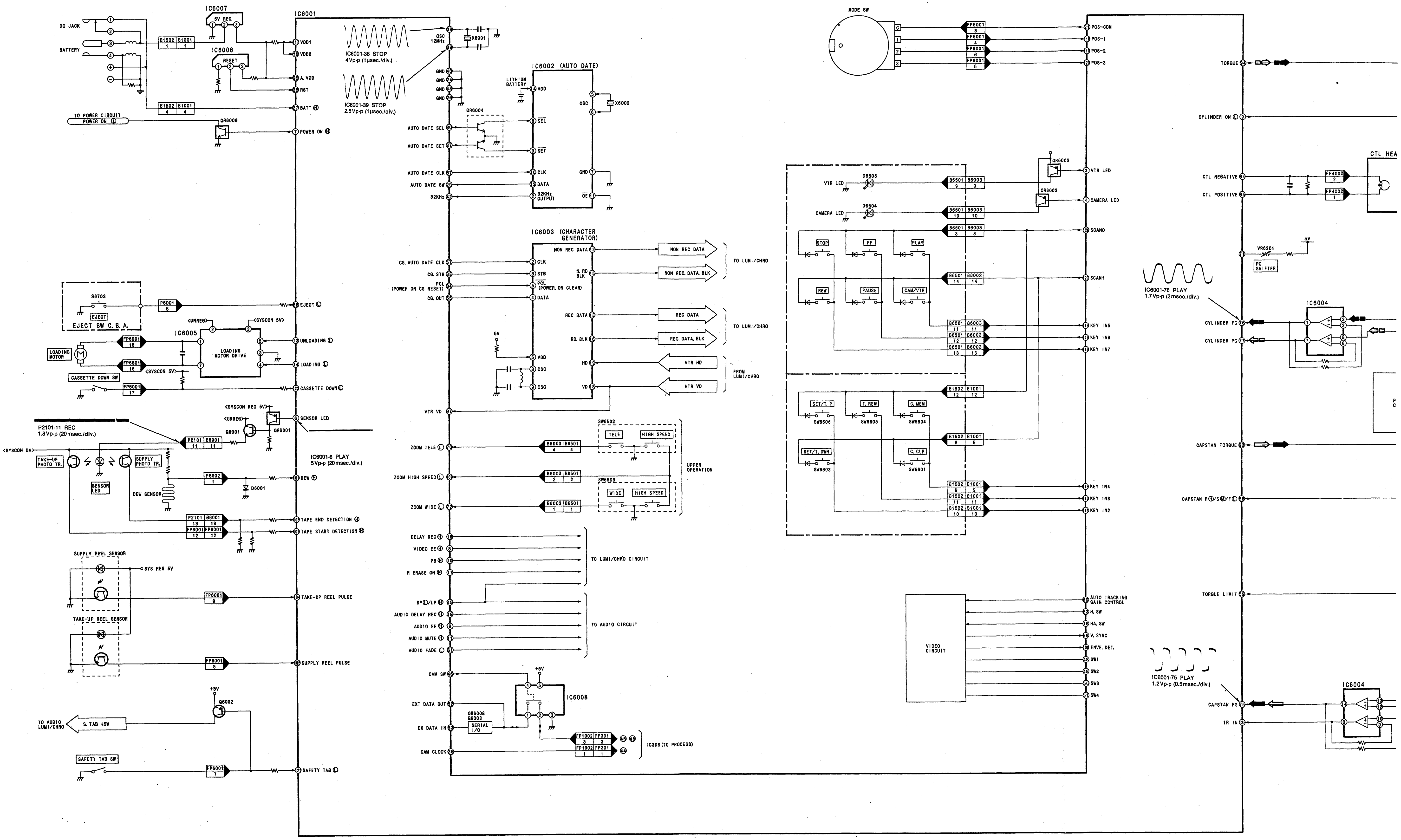
IC204-7 CAMERA REC
1.4Vp-p (H·RATE) GRAY SCALE

3-5. POWER BLOCK DIAGRAM


BATT Ⓗ
TO IC6001 ㉗
FP1002 FP301 10, 11 10, 11
TO CCD DRIVE
UNREG
TO SYSTEM CTL & SERVO
EVF 5V
TO VIDEO
REG 5V
SYSCON REG 5V
TO SYSTEM CTL & SERVO
V-PB 5V
TO VIDEO
SW UNREG
PB Ⓗ
(FROM IC6001 ⑩)
TO SYSTEM CTL & SERVO
CAM 3. 5V
FP1002 FP301 16, 17 16, 17
TO CCD DRIVE
CAMERA. P. ON Ⓗ
(FROM IC6001 ②)
FROM SYSTEM CTL & SERVO
CAMERA 5V
FP1002 FP301 6, 7 6, 7
TO CCD DRIVE
CAP VM
(TO IC2103 ⑫)
CAP SW
(FROM IC2103 ⑰)
TRI-WAVE
(TO IC2103 ⑯)
TO SYSTEM CTL & SERVO
CAM 18V
FP1002 FP301 12 12
CAM 9V
FP1002 FP301 5 5
CAM -8V
FP1002 FP301 13 13
TO CCD DRIVE
DC JACK
BATTERY
BATT Ⓗ
B1502 B1001 4 4
R1502
B1502 B1001 1, 2, 3 1, 2, 3
Q1006
L1001
Q1001
SW REG 5V
CL1007
D1103
L1002
L1003
CL1011
CL1010
IC1001
(SWITCHING REGULATOR)
IC1001-11 STOP
1.0Vp-p (1μsec./div.)
REFERENCE VOLTAGE
VOLTAGE CTL
PWM COMPARATOR &BUFFER
QR1003
QR1004
D1009
PROTECTOR CIRCUIT
FROM SYSTEM CTL & SERVO
POWER ON Ⓛ
(FROM QR6006, IC6001 ⑦)
CAM POWER ON Ⓗ
(FROM IC6001 ②)
TRI-WAVE OSC
ERROR AMP
R1040, R1041
QR1005
CL1002
CL1008
Q1003
D1004
L1007
L1008
Q1005
VOLTAGE CTL
PWM COMPARATOR &BUFFER
ERROR AMP
QR1002
D1008
CL1001
Q1002
IC1001-9 STOP
0.8Vp-p (1μsec./div.)
Q1007
D1015
L1062
L1005
C1016
IC1001-27 STOP
0.5Vp-p (2μsec./div.)
QR1001
BUFFER
T1001
CL1004
D1006
CL1003
D1005
CL1005
D1007
IC1001-15 STOP
1.1Vp-p (1μsec./div.)
VOLTAGE CTL
PWM COMPARATOR &BUFFER
ERROR AMP
Q1004
PULSE AMP
CL1009
T1001-1 STOP
15Vp-p (1μsec./div.)

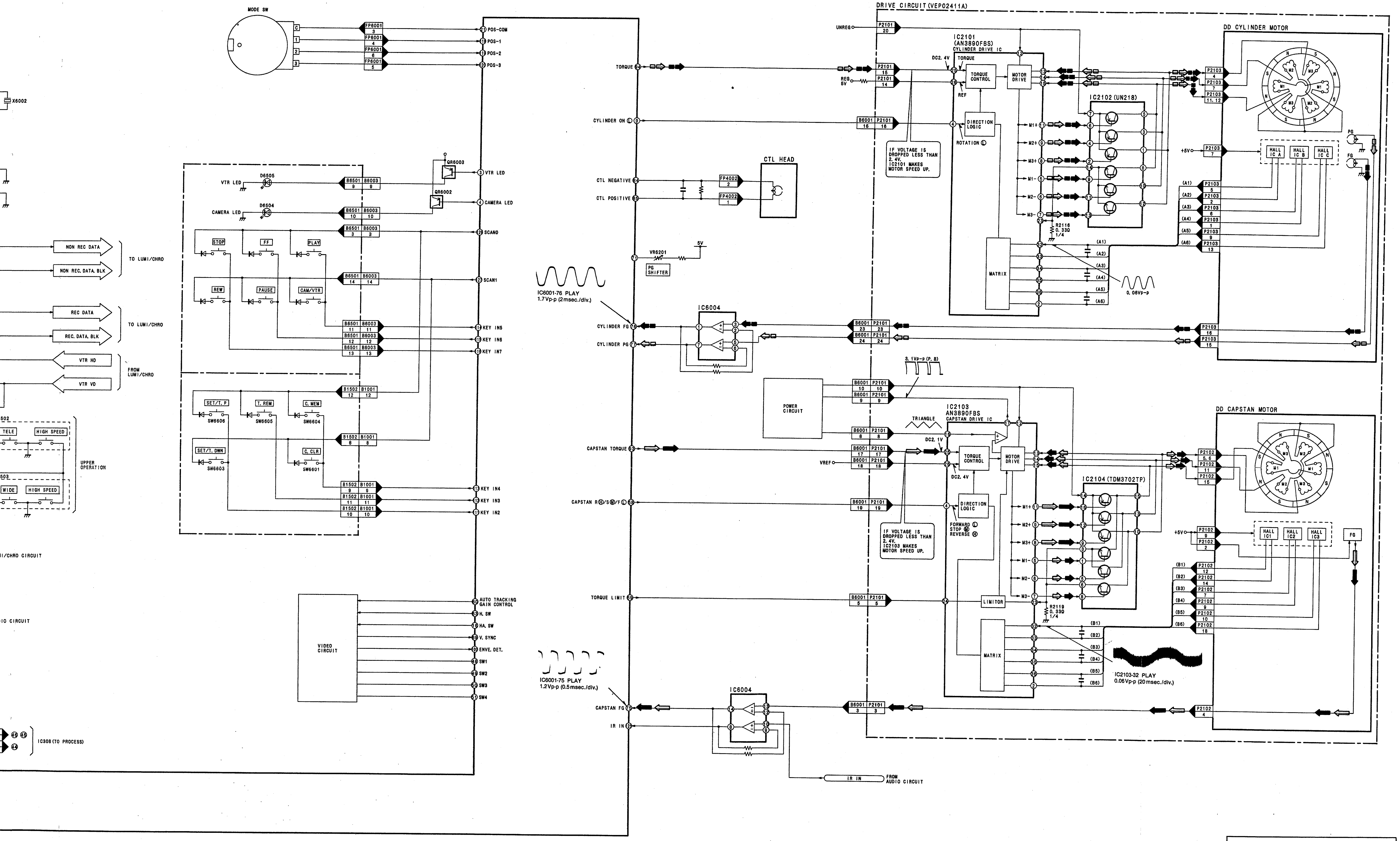
Back Page:
CCD DRIVE Section

3-6. SYSTEM CONTROL AND SERVO BLOCK DIAGRAM


IC6001
IC6007
5V REG.
IC6006
RESET
DC JACK
BATTERY
TO POWER CIRCUIT POWER ON Ⓛ
QR6006
VDD1
VDD2
A. VDD
RST
BATT Ⓗ
POWER ON Ⓗ
OSC 12MHz
X6001
IC6001-38 STOP
4Vp-p (1μsec./div.)
IC6001-39 STOP
2.5Vp-p (1μsec./div.)
GND
IC6002 (AUTO DATE)
LITHIUM BATTERY
VDD
OSC
X6002
QR6004
AUTO DATE SEL
AUTO DATE SET
SEL
SET
AUTO DATE CLK
AUTO DATE SW
32KHz
CLK
DATA
32KHz OUTPUT
GND
OE
IC6003 (CHARACTER GENERATOR)
NON REC DATA
N. RD BLK
CG. AUTO DATE CLK
CG. STB
PCL (POWER ON CG RESET)
CG. OUT
CLK
STB
PCL (POWER. ON CLEAR)
DATA
REC DATA
RD. BLK
HD
VD
5V
VDD
OSC
NON REC DATA
NON REC. DATA. BLK
REC DATA
REC. DATA. BLK
VTR HD
VTR VD
TO LUMI/CHRO
FROM LUMI/CHRO
S6703
EJECT
EJECT SW C. B. A.
P6001
EJECT Ⓛ
IC6005
LOADING MOTOR DRIVE
<UNREG>
<SYSCON 5V>
LOADING MOTOR
FP6001
UNLOADING Ⓛ
LOADING Ⓛ
CASSETTE DOWN SW
CASSETTE DOWN Ⓛ
<SYSCON REG 5V>
<UNREG>
Q6001
QR6001
SENSOR LED
P2101-11 REC
1.8Vp-p (20msec./div.)
P2101 B6001
<SYSCON 5V>
TAKE-UP PHOTO TR.
SUPPLY PHOTO TR.
SENSOR LED
IC6001-6 PLAY
5Vp-p (20msec./div.)
P6002
DEW Ⓗ
D6001
DEW SENSOR
TAPE END DETECTION Ⓗ
TAPE START DETECTION Ⓗ
SUPPLY REEL SENSOR
SYS REG 5V
TAKE-UP REEL PULSE
TAKE-UP REEL SENSOR
SUPPLY REEL PULSE
+5V
Q6002
TO AUDIO LUMI/CHRO
S. TAB +5V
SAFETY TAB SW
SAFETY TAB Ⓛ
VTR VD
ZOOM TELE Ⓛ
ZOOM HIGH SPEED Ⓛ
ZOOM WIDE Ⓛ
B6003 B6501
SW6502
TELE
HIGH SPEED
SW6503
WIDE
HIGH SPEED
UPPER OPERATION
DELAY REC Ⓗ
VIDEO EE Ⓗ
PB Ⓗ
R ERASE ON Ⓗ
TO LUMI/CHRO CIRCUIT
SP Ⓛ/LP Ⓗ
AUDIO DELAY REC Ⓗ
AUDIO EE Ⓗ
AUDIO MUTE Ⓗ
AUDIO FADE Ⓛ
TO AUDIO CIRCUIT
CAM SW
EXT DATA OUT
EX DATA IN
CAM CLOCK
IC6008
QR6008 Q6003
SERIAL I/O
FP1002 FP301
IC308 (TO PROCESS)
MODE SW
POS-COM
POS-1
POS-2
POS-3
QR6003
QR6002
VTR LED
CAMERA LED
D6505
D6504
B6501 B6003
STOP
FF
PLAY
REW
PAUSE
CAM/VTR
SCAN0
SCAN1
KEY IN5
KEY IN6
KEY IN7
B1502 B1001
SET/T. P
T. REM
C. MEM
SW6606
SW6605
SW6604
SET/T. DWN
C. CLR
SW6603
SW6601
KEY IN4
KEY IN3
KEY IN2
VIDEO CIRCUIT
AUTO TRACKING GAIN CONTROL
H. SW
HA. SW
V. SYNC
ENVE. DET.
SW1
SW2
SW3
SW4
TORQUE
CYLINDER ON Ⓛ
CTL HEA
CTL NEGATIVE
CTL POSITIVE
FP4002
5V
VR6201
PG SHIFTER
IC6001-76 PLAY
1.7Vp-p (2msec./div.)
IC6004
CYLINDER FG
CYLINDER PG
CAPSTAN TORQUE
CAPSTAN RⒽ/SⒽ/FⓁ
TORQUE LIMIT
IC6001-75 PLAY
1.2Vp-p (0.5msec./div.)
CAPSTAN FG
IR IN

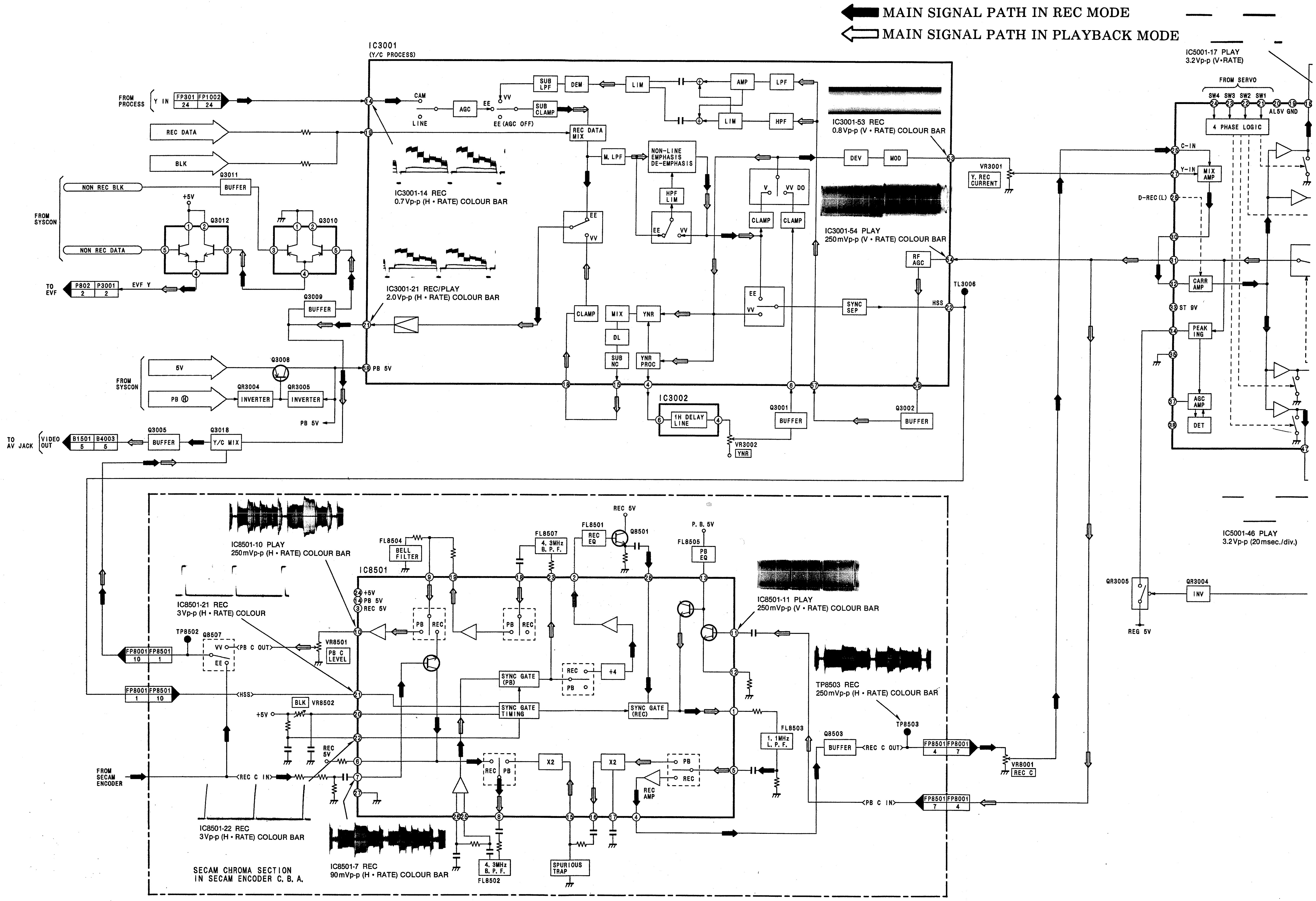
◀ CAPSTAN SERVO SPEED LOOP
◁ CAPSTAN SERVO PHASE LOOP

◀■ CYLINDER SERVO SPEED LOOP
◁□ CYLINDER SERVO PHASE LOOP


MODE SW
FP6001
POS-COM
POS-1
POS-2
POS-3
X6002
NON REC DATA
NON REC. DATA. BLK
TO LUMI/CHRO
REC DATA
REC. DATA. BLK
TO LUMI/CHRO
VTR HD
VTR VD
FROM LUMI/CHRO
TELE
HIGH SPEED
UPPER OPERATION
WIDE
HIGH SPEED
LUMI/CHRO CIRCUIT
AUDIO CIRCUIT
IC308 (TO PROCESS)
VTR LED
D6505
CAMERA LED
D6504
B6501
B6003
QR6003
QR6002
VTR LED
CAMERA LED
SCAN0
SCAN1
STOP
FF
PLAY
REW
PAUSE
CAM/VTR
KEY IN5
KEY IN6
KEY IN7
SET/T. P
T. REM
C. MEM
SW6606
SW6605
SW6604
SET/T. DWN
C. CLR
SW6603
SW6601
B1502
B1001
KEY IN4
KEY IN3
KEY IN2
VIDEO CIRCUIT
AUTO TRACKING GAIN CONTROL
H. SW
HA. SW
V. SYNC
ENVE. DET.
SW1
SW2
SW3
SW4
TORQUE
CYLINDER ON
CTL NEGATIVE
CTL POSITIVE
FP4002
CTL HEAD
VR6201
5V
PG SHIFTER
IC6001-76 PLAY
1.7Vp-p (2msec./div.)
CYLINDER FG
CYLINDER PG
IC6004
CAPSTAN TORQUE
CAPSTAN R/S/F
TORQUE LIMIT
IC6001-75 PLAY
1.2Vp-p (0.5msec./div.)
CAPSTAN FG
IR IN
IC6004
IR IN
FROM AUDIO CIRCUIT
DRIVE CIRCUIT (VEP02411A)
UNREG
P2101
REG 5V
IC2101
(AN3890FBS)
CYLINDER DRIVE IC
DC2. 4V
TORQUE
TORQUE CONTROL
MOTOR DRIVE
REF
DIRECTION LOGIC
ROTATION
IF VOLTAGE IS DROPPED LESS THAN 2. 4V, IC2101 MAKES MOTOR SPEED UP.
IC2102 (UN218)
M1+
M2+
M3+
M1-
M2-
M3-
R2116
0. 33Ω
1/4
MATRIX
0. 06Vp-p
B6001
DD CYLINDER MOTOR
P2103
+5V
HALL IC A
HALL IC B
HALL IC C
PG
FG
(A1)
(A2)
(A3)
(A4)
(A5)
(A6)
3. 1Vp-p (P. B)
POWER CIRCUIT
IC2103
AN3890FBS
CAPSTAN DRIVE IC
TRIANGLE
DC2. 1V
VREF
DC2. 4V
TORQUE CONTROL
MOTOR DRIVE
DIRECTION LOGIC
FORWARD
STOP
REVERSE
IF VOLTAGE IS DROPPED LESS THAN 2. 4V, IC2103 MAKES MOTOR SPEED UP.
IC2104 (TDM3702TP)
LIMITOR
R2119
0. 33Ω
1/4
MATRIX
(B1)
(B2)
(B3)
(B4)
(B5)
(B6)
IC2103-32 PLAY
0.06Vp-p (20msec./div.)
DD CAPSTAN MOTOR
P2102
HALL IC1
HALL IC2
HALL IC3
FG
M1
M2
M3
N
S

Next Page:
LUMI/CHRO & HA Section

3-7. LUMINACE/CHROMINANCE AND HEAD AMP BLOCK DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
IC3001
(Y/C PROCESS)
FROM PROCESS
Y IN
FP301
FP1002
24
24
REC DATA
BLK
FROM SYSCON
NON REC BLK
NON REC DATA
Q3011
BUFFER
+5V
Q3012
Q3010
TO EVF
P802
P3001
2
2
EVF Y
Q3009
BUFFER
5V
PB Ⓗ
Q3008
QR3004
INVERTER
QR3005
INVERTER
PB 5V
TO AV JACK
VIDEO OUT
B1501
B4003
5
5
Q3005
BUFFER
Q3018
Y/C MIX
CAM
LINE
AGC
EE
VV
EE (AGC OFF)
SUB LPF
DEM
SUB CLAMP
REC DATA MIX
LIM
AMP
LPF
HPF
M. LPF
NON-LINE EMPHASIS DE-EMPHASIS
HPF LIM
V
VV DO
CLAMP
CLAMP
DEV
MOD
EE
VV
CLAMP
MIX
YNR
DL
SUB NC
YNR PROC
SYNC SEP
RF AGC
HSS
TL3006
PB 5V
IC3002
1H DELAY LINE
VR3002
YNR
Q3001
BUFFER
Q3002
BUFFER
VR3001
Y. REC CURRENT
IC5001
FROM SERVO
SW4
SW3
SW2
SW1
AL5V GND
4 PHASE LOGIC
C-IN
Y-IN
MIX AMP
D-REC(L)
CARR AMP
ST 9V
PEAK ING
AGC AMP
DET
QR3005
REG 5V
QR3004
INV
IC8501
REC 5V
Q8501
FL8501
REC EQ
FL8507
4. 3MHz B. P. F.
FL8504
BELL FILTER
P. B. 5V
FL8505
PB EQ
+5V
PB 5V
REC 5V
PB
REC
TP8502
Q8507
VV
EE
PB C OUT
VR8501
PB C LEVEL
FP8001
FP8501
10
1
HSS
FP8001
FP8501
1
10
BLK
VR8502
+5V
SYNC GATE (PB)
SYNC GATE TIMING
REC
PB
+4
SYNC GATE (REC)
FL8503
1. 1MHz L. P. F.
Q8503
BUFFER
REC C OUT
FP8501
FP8001
4
7
VR8001
REC C
TP8503
PB C IN
FP8501
FP8001
7
4
FROM SECAM ENCODER
REC C IN
REC 5V
X2
X2
REC
PB
REC AMP
4. 3MHz B. P. F.
FL8502
SPURIOUS TRAP
SECAM CHROMA SECTION IN SECAM ENCODER C. B. A.

IC3001-14 REC
0.7Vp-p (H • RATE) COLOUR BAR

IC3001-21 REC/PLAY
2.0Vp-p (H • RATE) COLOUR BAR

IC3001-53 REC
0.8Vp-p (V • RATE) COLOUR BAR

IC3001-54 PLAY
250mVp-p (V • RATE) COLOUR BAR

IC5001-17 PLAY
3.2Vp-p (V•RATE)

IC5001-46 PLAY
3.2Vp-p (20msec./div.)

IC8501-10 PLAY
250mVp-p (H • RATE) COLOUR BAR

IC8501-21 REC
3Vp-p (H • RATE) COLOUR

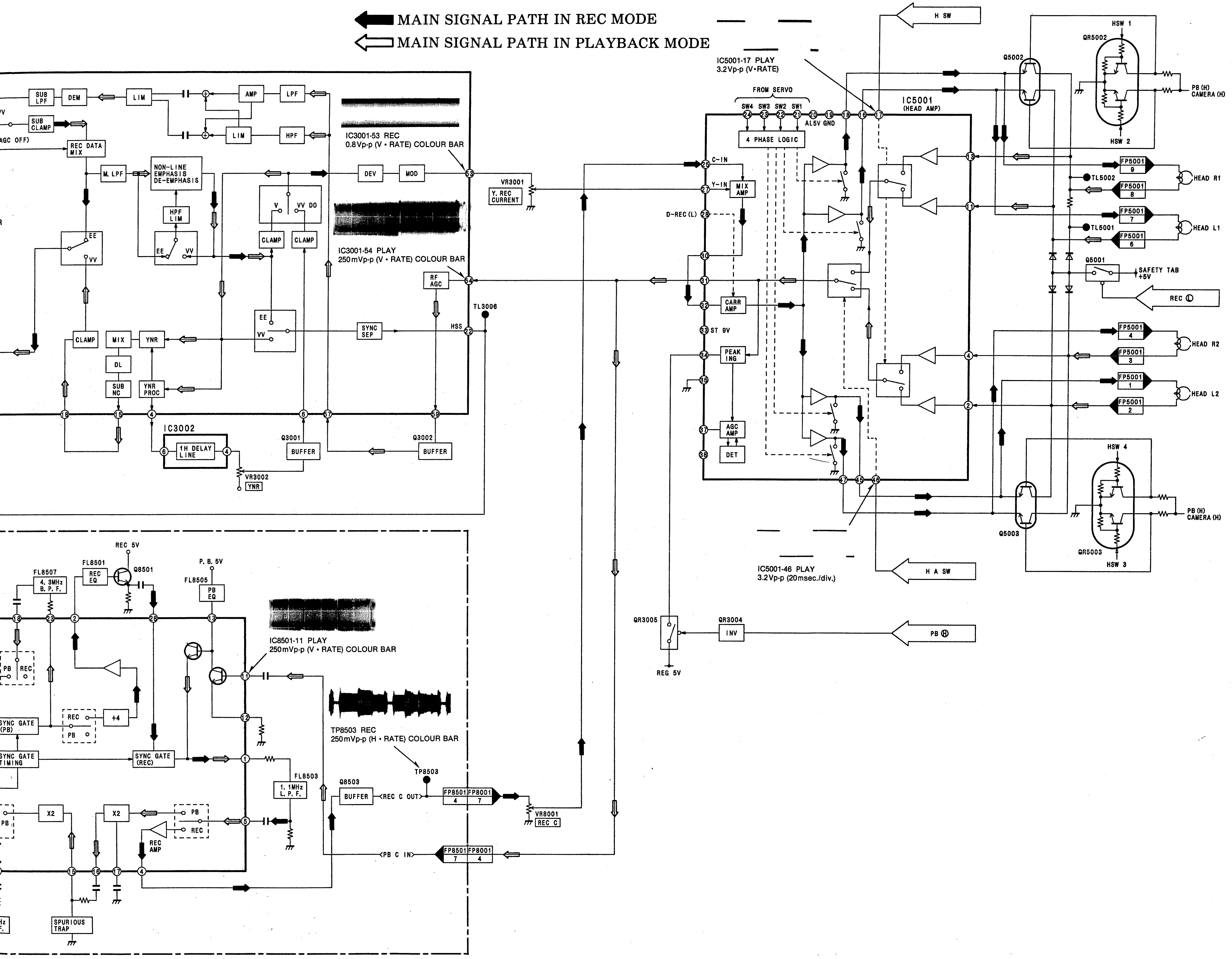
IC8501-11 PLAY
250mVp-p (V • RATE) COLOUR BAR

TP8503 REC
250mVp-p (H • RATE) COLOUR BAR

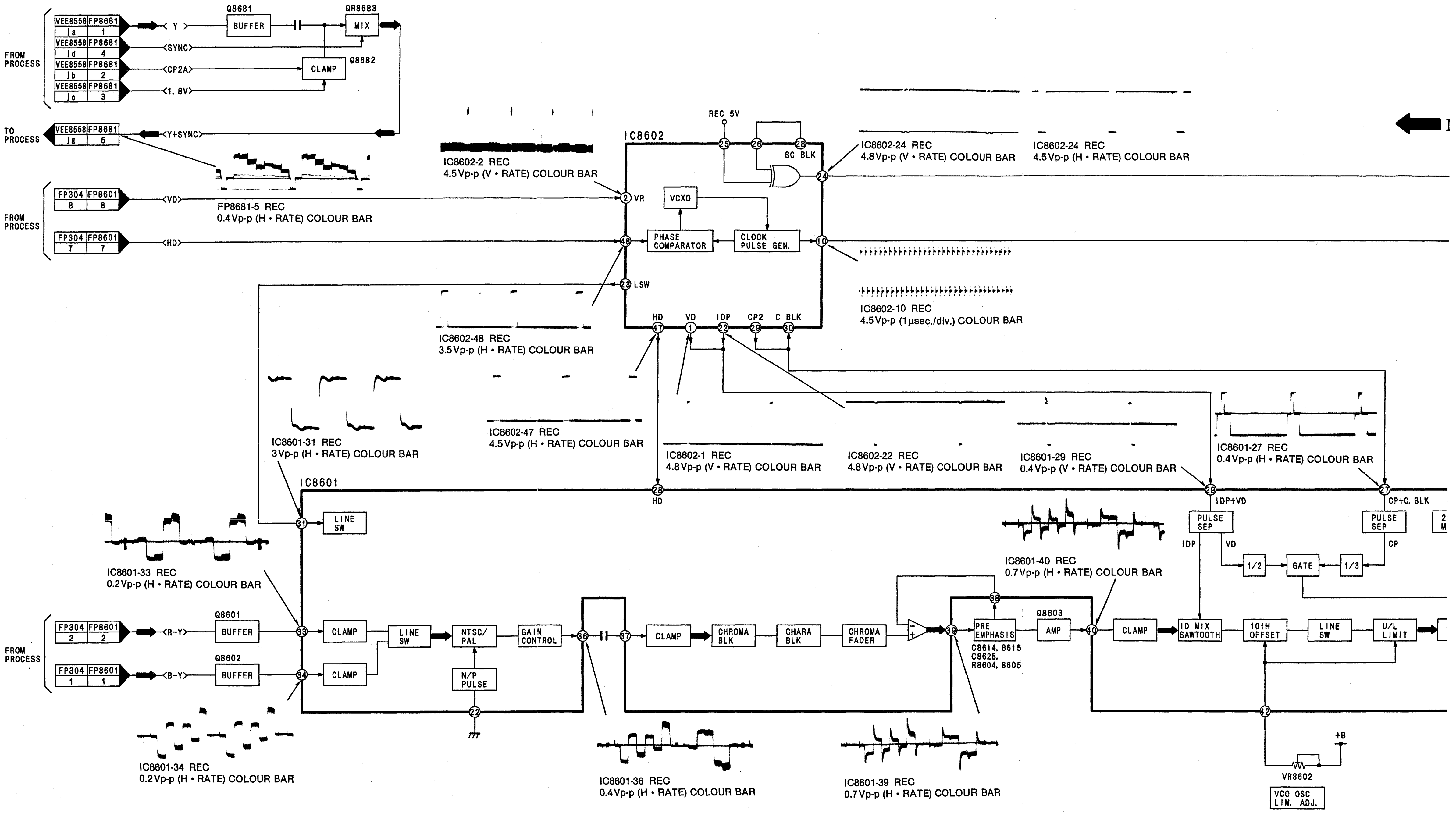
IC8501-22 REC
3Vp-p (H • RATE) COLOUR BAR

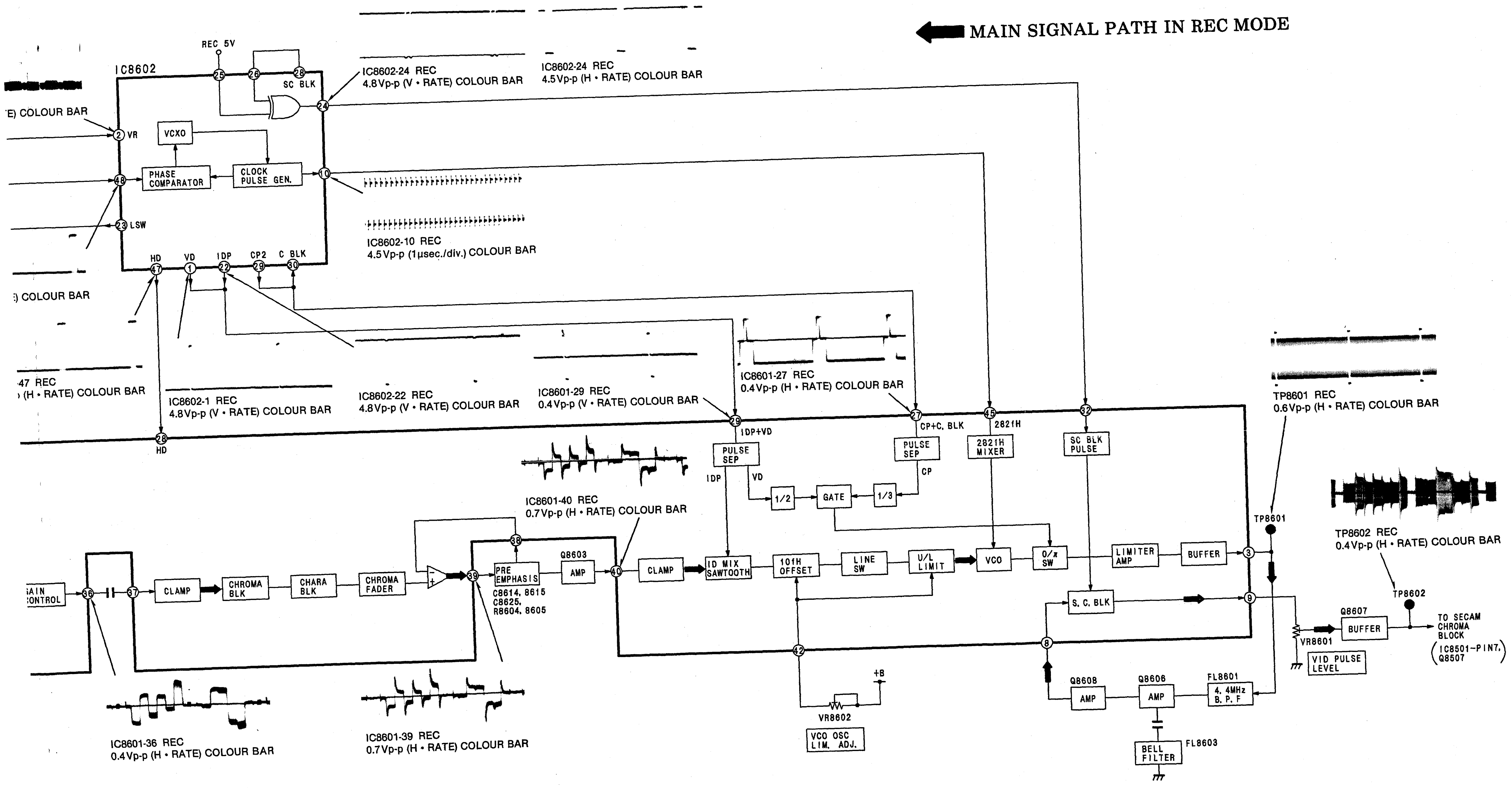
IC8501-7 REC
90mVp-p (H • RATE) COLOUR BAR

BLOCK DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
SUB LPF
DEM
LIM
AMP
LPF
SUB CLAMP
AGC OFF)
LIM
HPF
REC DATA MIX
IC3001-53 REC
0.8Vp-p (V • RATE) COLOUR BAR
M. LPF
NON-LINE EMPHASIS DE-EMPHASIS
DEV
MOD
VR3001
Y. REC CURRENT
HPF LIM
V
VV DO
EE
VV
CLAMP
CLAMP
IC3001-54 PLAY
250mVp-p (V • RATE) COLOUR BAR
RF AGC
TL3006
HSS
SYNC SEP
EE
VV
CLAMP
MIX
YNR
DL
SUB NC
YNR PROC
IC3002
1H DELAY LINE
Q3001
BUFFER
Q3002
BUFFER
VR3002
YNR
REC 5V
FL8507
4. 3MHz B. P. F.
FL8501
REC EQ
Q8501
P. B. 5V
FL8505
PB EQ
IC8501-11 PLAY
250mVp-p (V • RATE) COLOUR BAR
PB
REC
REC
PB
+4
SYNC GATE (PB)
SYNC GATE TIMING
SYNC GATE (REC)
TP8503 REC
250mVp-p (H • RATE) COLOUR BAR
TP8503
FL8503
1. 1MHz L. P. F.
Q8503
BUFFER
REC C OUT
FP8501 4
FP8001 7
VR8001
REC C
X2
X2
PB
REC
REC AMP
PB C IN
FP8501 7
FP8001 4
SPURIOUS TRAP
IC5001-17 PLAY
3.2Vp-p (V•RATE)
FROM SERVO
SW4 SW3 SW2 SW1
AL5V GND
IC5001
(HEAD AMP)
4 PHASE LOGIC
C-IN
Y-IN
MIX AMP
D-REC (L)
CARR AMP
ST 9V
PEAK ING
AGC AMP
DET
H SW
Q5002
QR5002
HSW 1
HSW 2
PB (H)
CAMERA (H)
FP5001 9
TL5002
HEAD R1
FP5001 8
FP5001 7
TL5001
HEAD L1
FP5001 6
Q5001
SAFETY TAB
+5V
REC Ⓛ
FP5001 4
HEAD R2
FP5001 3
FP5001 1
HEAD L2
FP5001 2
HSW 4
HSW 3
Q5003
QR5003
PB (H)
CAMERA (H)
IC5001-46 PLAY
3.2Vp-p (20msec./div.)
H A SW
QR3005
QR3004
INV
PB Ⓗ
REG 5V

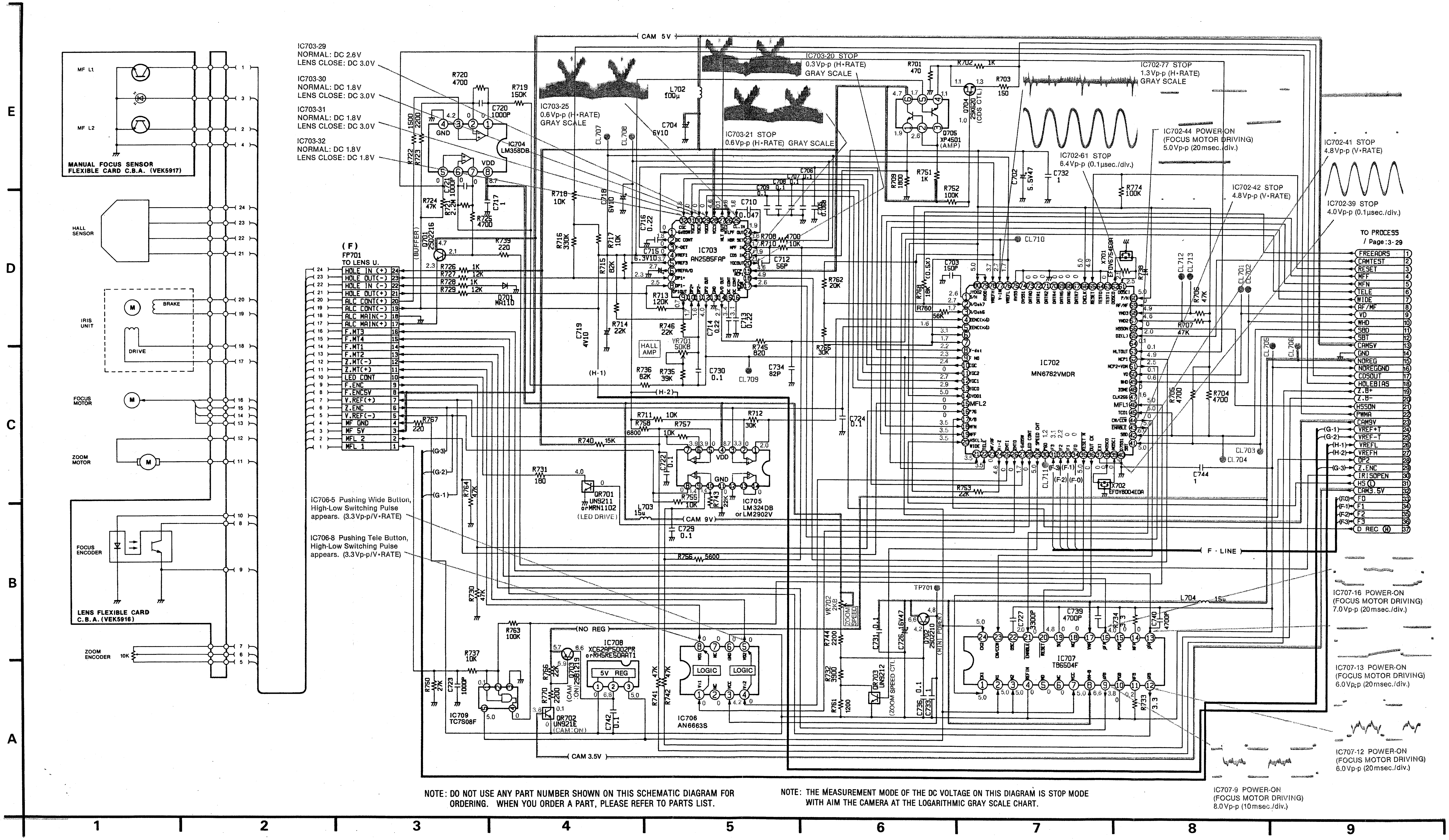
3-8. SECAM ENCODER BLOCK DIAGRAM


FROM PROCESS
VEE8558 FP8681 Ja 1
VEE8558 FP8681 Jd 4
VEE8558 FP8681 Jb 2
VEE8558 FP8681 Jc 3
Y
SYNC
CP2A
1. 8V
Q8681
BUFFER
QR8683
MIX
CLAMP
Q8682
TO PROCESS
VEE8558 FP8681 Jg 5
Y+SYNC
FP8681-5 REC
0.4Vp-p (H • RATE) COLOUR BAR
FROM PROCESS
FP304 FP8601 8 8
VD
FP304 FP8601 7 7
HD
IC8602-2 REC
4.5Vp-p (V • RATE) COLOUR BAR
IC8602
REC 5V
SC BLK
VR
VCXO
PHASE COMPARATOR
CLOCK PULSE GEN.
LSW
HD
VD
IDP
CP2
C BLK
IC8602-24 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-24 REC
4.5Vp-p (H • RATE) COLOUR BAR
IC8602-10 REC
4.5Vp-p (1μsec./div.) COLOUR BAR
IC8602-48 REC
3.5Vp-p (H • RATE) COLOUR BAR
IC8601-31 REC
3Vp-p (H • RATE) COLOUR BAR
IC8602-47 REC
4.5Vp-p (H • RATE) COLOUR BAR
IC8602-1 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-22 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8601-29 REC
0.4Vp-p (V • RATE) COLOUR BAR
IC8601-27 REC
0.4Vp-p (H • RATE) COLOUR BAR
IC8601
HD
LINE SW
IDP+VD
PULSE SEP
IDP
VD
CP+C. BLK
PULSE SEP
CP
1/2
GATE
1/3
IC8601-33 REC
0.2Vp-p (H • RATE) COLOUR BAR
IC8601-40 REC
0.7Vp-p (H • RATE) COLOUR BAR
FROM PROCESS
FP304 FP8601 2 2
R-Y
Q8601
BUFFER
FP304 FP8601 1 1
B-Y
Q8602
BUFFER
CLAMP
CLAMP
LINE SW
NTSC/PAL
N/P PULSE
GAIN CONTROL
CLAMP
CHROMA BLK
CHARA BLK
CHROMA FADER
PRE EMPHASIS
C8614, 8615
C8625,
R8604, 8605
Q8603
AMP
CLAMP
ID MIX SAWTOOTH
10fH OFFSET
LINE SW
U/L LIMIT
+B
VR8602
VCO OSC LIM. ADJ.
IC8601-34 REC
0.2Vp-p (H • RATE) COLOUR BAR
IC8601-36 REC
0.4Vp-p (H • RATE) COLOUR BAR
IC8601-39 REC
0.7Vp-p (H • RATE) COLOUR BAR
① ㉒ ㉓ ㉔ ㉕ ㉖ ㉗ ㉘ ㉙ ㉚ ㉛ ㉝ ㉞ ㊱ ㊲ ㊳ ㊴ ㊵ ㊷ ㊼ ㊽


MAIN SIGNAL PATH IN REC MODE
IC8602
REC 5V
SC BLK
VCXO
PHASE COMPARATOR
CLOCK PULSE GEN.
VR
LSW
HD
VD
IDP
CP2
C BLK
E) COLOUR BAR
) COLOUR BAR
47 REC
(H • RATE) COLOUR BAR
IC8602-24 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-24 REC
4.5Vp-p (H • RATE) COLOUR BAR
IC8602-10 REC
4.5Vp-p (1μsec./div.) COLOUR BAR
IC8602-1 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-22 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8601-29 REC
0.4Vp-p (V • RATE) COLOUR BAR
IC8601-27 REC
0.4Vp-p (H • RATE) COLOUR BAR
TP8601 REC
0.6Vp-p (H • RATE) COLOUR BAR
TP8602 REC
0.4Vp-p (H • RATE) COLOUR BAR
IDP+VD
CP+C. BLK
2821H
PULSE SEP
PULSE SEP
2821H MIXER
SC BLK PULSE
IDP
VD
CP
1/2
GATE
1/3
IC8601-40 REC
0.7Vp-p (H • RATE) COLOUR BAR
GAIN CONTROL
CLAMP
CHROMA BLK
CHARA BLK
CHROMA FADER
PRE EMPHASIS
C8614, 8615
C8625,
R8604, 8605
Q8603
AMP
CLAMP
ID MIX SAWTOOTH
10fH OFFSET
LINE SW
U/L LIMIT
VCO
0/π SW
LIMITER AMP
BUFFER
TP8601
TP8602
S. C. BLK
Q8607
BUFFER
VR8601
VID PULSE LEVEL
TO SECAM CHROMA BLOCK
(IC8501-PIN7, Q8507)
+B
VR8602
VCO OSC LIM. ADJ.
Q8608
AMP
Q8606
AMP
FL8601
4. 4MHz B. P. F
BELL FILTER
FL8603
IC8601-36 REC
0.4Vp-p (H • RATE) COLOUR BAR
IC8601-39 REC
0.7Vp-p (H • RATE) COLOUR BAR

Next Page:
AF Section

3.9. AUTO FOCUS SCHEMATIC DIAGRAM



MANUAL FOCUS SENSOR FLEXIBLE CARD C.B.A. (VEK5917)
MF L1
MF L2
HALL SENSOR
IRIS UNIT
BRAKE
DRIVE
FOCUS MOTOR
ZOOM MOTOR
FOCUS ENCODER
LENS FLEXIBLE CARD C.B.A. (VEK5916)
ZOOM ENCODER
(F) FP701 TO LENS U.
HOLE IN (+)
HOLE OUT(-)
HOLE IN (-)
HOLE OUT(+)
ALC CONT(+)
ALC CONT(-)
ALC MAIN(-)
ALC MAIN(+)
F.MT3
F.MT4
F.MT1
F.MT2
Z.MT(-)
Z.MT(+)
LED CONT
F.ENC
F.ENC5V
V.REF(+)
Z.ENC
V.REF(-)
MF GND
MF 5V
MFL 2
MFL 1
IC703-29 NORMAL: DC 2.6V LENS CLOSE: DC 3.0V
IC703-30 NORMAL: DC 1.8V LENS CLOSE: DC 3.0V
IC703-31 NORMAL: DC 1.8V LENS CLOSE: DC 3.0V
IC703-32 NORMAL: DC 1.8V LENS CLOSE: DC 1.8V
IC704 LM358DB
IC703 AN2585FAP
IC703-25 0.6Vp-p (H•RATE) GRAY SCALE
IC703-20 STOP 0.3Vp-p (H•RATE) GRAY SCALE
IC703-21 STOP 0.6Vp-p (H•RATE) GRAY SCALE
IC702-77 STOP 1.3Vp-p (H•RATE) GRAY SCALE
IC702-61 STOP 6.4Vp-p (0.1μsec./div.)
IC702-44 POWER ON (FOCUS MOTOR DRIVING) 5.0Vp-p (20msec./div.)
IC702-41 STOP 4.8Vp-p (V•RATE)
IC702-42 STOP 4.8Vp-p (V•RATE)
IC702-39 STOP 4.0Vp-p (0.1μsec./div.)
IC702 MN6782VMDR
Q705 XP4501 (AMP)
Q704 2SK620 (CDS CTL)
X701 EFOV675AE0A
X702 EFOY800D4E0A
HALL AMP
VR701 50KB
IC705 LM324DB or LM2902V
Q701 2SD2216 (BUFFER)
D701 MA110
QR701 UN9211 or MRN1102 (LED DRIVE)
IC706-5 Pushing Wide Button, High-Low Switching Pulse appears. (3.3Vp-p/V•RATE)
IC706-8 Pushing Tele Button, High-Low Switching Pulse appears. (3.3Vp-p/V•RATE)
IC709 TC7S08F
IC708 XC62AP5002PR or RH5RE50AA1
5V REG
QR702 UN921E (CAM:ON)
Q703 2SB1219 (CAM ON)
IC706 AN6663S
LOGIC
VR702 2KB (ZOOM SPEED)
QR703 UN9212 (ZOOM SPEED CTL)
Q702 2SD2210 (MTR POWER)
IC707 TB6504F
TP701
CAM 5V
CAM 9V
CAM 3.5V
NO REG
F • LINE
TO PROCESS / Page:3-29
FREEADRS
CAMTEST
RESET
MFF
MFN
TELE
WIDE
AF/MF
VD
WHD
SBD
SBT
CAM5V
GND
NOREG
NOREGGND
CDSOUT
HOLEBIAS
Z.B+
Z.B-
HSSON
PWMA
CAM9V
VREF+T
VREF-T
VREFL
VREFH
OP2
Z.ENC
IRISOPEN
HS
CAM3.5V
FO
F1
F2
F3
D REC
IC707-16 POWER-ON (FOCUS MOTOR DRIVING) 7.0Vp-p (20msec./div.)
IC707-13 POWER-ON (FOCUS MOTOR DRIVING) 6.0Vp-p (20msec./div.)
IC707-12 POWER-ON (FOCUS MOTOR DRIVING) 6.0Vp-p (20msec./div.)
IC707-9 POWER-ON (FOCUS MOTOR DRIVING) 8.0Vp-p (10msec./div.)
E
D
C
B
A
1
2
3
4
5
6
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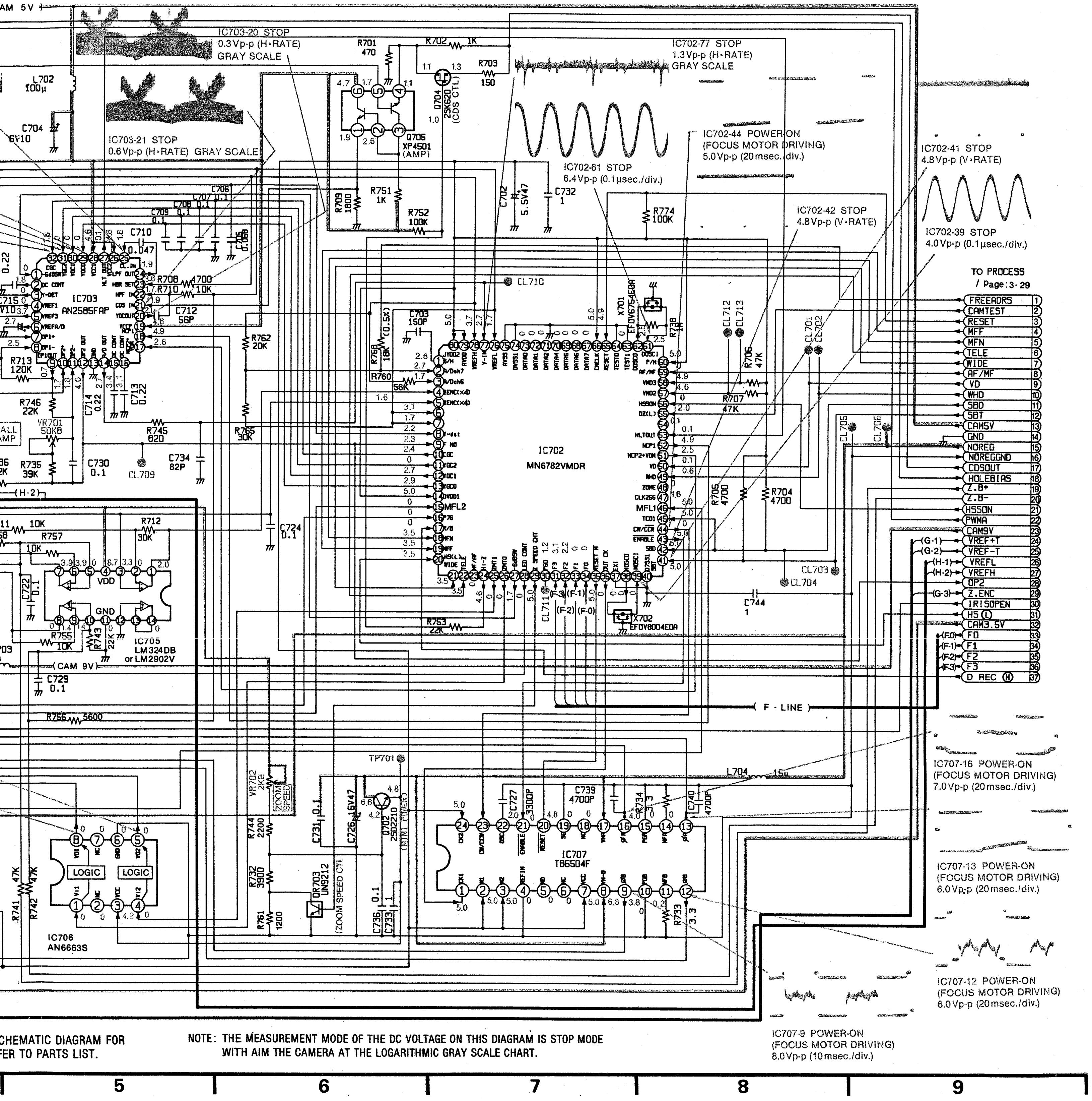
8
9

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

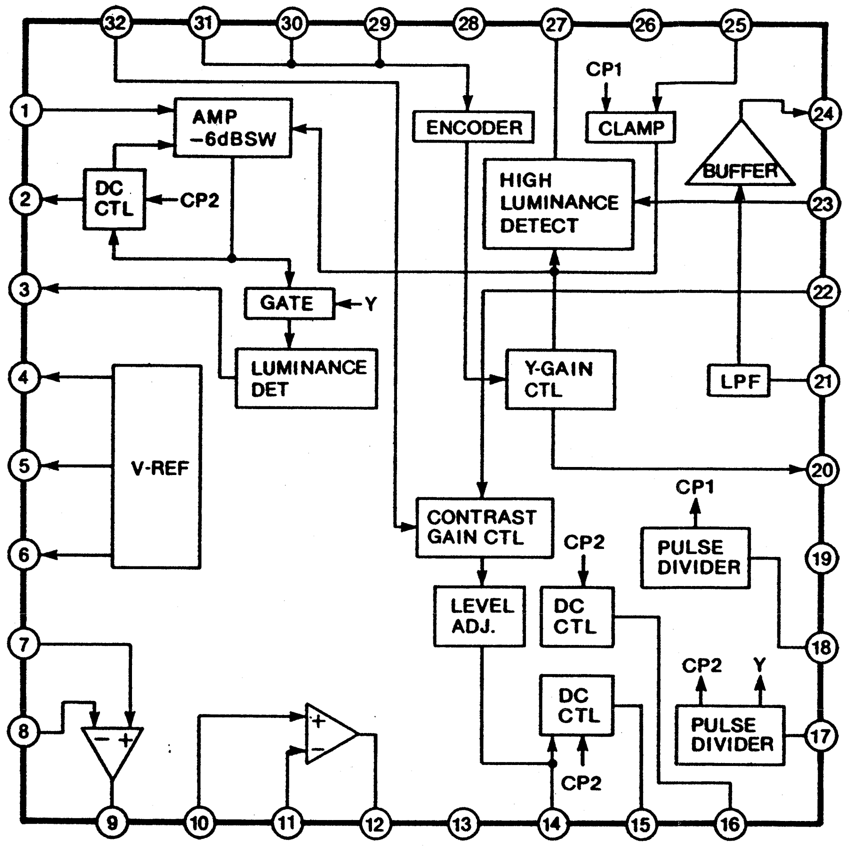
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.


AM 5V
IC703-20 STOP
0.3Vp-p (H·RATE)
GRAY SCALE
IC703-21 STOP
0.6Vp-p (H·RATE) GRAY SCALE
L702 100µ
C704 6V10
R701 470
R702 1K
R703 150
Q704 2SK620 (CDS CTL)
Q705 XP4501 (AMP)
R751 1K
R752 100K
R709 100
IC702-77 STOP
1.3Vp-p (H·RATE)
GRAY SCALE
IC702-61 STOP
6.4Vp-p (0.1µsec./div.)
IC702-44 POWER ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)
IC702-42 STOP
4.8Vp-p (V·RATE)
IC702-41 STOP
4.8Vp-p (V·RATE)
IC702-39 STOP
4.0Vp-p (0.1µsec./div.)
C702 5.5V47
C732 1
R774 100K
C706
C707 0.1
C708 0.1
C709 0.1
C710
IC703 AN2585FAP
R708 4700
R710 10K
C712 56P
R713 120K
R746 22K
VR701 50KB
R745 820
C714 0.22
C713 0.22
C730 0.1
C734 82P
R735 39K
R762 20K
R765 33K
R760
R768 18K
C703 150P
CL710
X701 EFOV6754E0A
CL712
CL713
R706 47K
R707 47K
CL701
CL702
IC702 MN6782VMDR
R705 4700
R704 4700
CL709
CL70E
CL703
CL704
C744 1
X702 EFOV8004E0A
R753 22K
R712 30K
R757
C722 0.1
VDD
GND
R755 10K
R743 22K
IC705 LM324DB or LM2902V
C729 0.1
(CAM 9V)
R756 5600
(H-2)
C724 0.1
(F-1)
(F-2)
(F-0)
F-LINE
TO PROCESS / Page:3-29
FREEADRS 1
CAMTEST 2
RESET 3
MFF 4
MFN 5
TELE 6
WIDE 7
AF/MF 8
VD 9
WHD 10
SBD 11
SBT 12
CAM5V 13
GND 14
NOREG 15
NOREGGND 16
CDSOUT 17
HOLEBIAS 18
Z.B+ 19
Z.B- 20
HSSON 21
PWMA 22
CAM9V 23
(G-1) VREF+T 24
(G-2) VREF-T 25
(H-1) VREFL 26
(H-2) VREFH 27
OP2 28
(G-3) Z.ENC 29
IRISOPEN 30
HS Ⓛ 31
CAM3.5V 32
(F0) F0 33
(F-1) F1 34
(F-2) F2 35
(F-3) F3 36
D REC Ⓗ 37
TP701
VR702 2KB
ZOOM SPEED
R744 2200
R732 3900
R751 1200
C731 0.1
C726 16V47
Q702 2SD2210
QR703 UN5212
ZOOM SPEED CTL
C736 0.1
C735
C727
C739 4700P
C740 4700P
R734
R733 3.3
L704 15µ
IC707 TB6504F
LOGIC
LOGIC
IC706 AN6663S
R741 47K
R742 47K
IC707-16 POWER-ON
(FOCUS MOTOR DRIVING)
7.0Vp-p (20msec./div.)
IC707-13 POWER-ON
(FOCUS MOTOR DRIVING)
6.0Vp-p (20msec./div.)
IC707-12 POWER-ON
(FOCUS MOTOR DRIVING)
6.0Vp-p (20msec./div.)
IC707-9 POWER-ON
(FOCUS MOTOR DRIVING)
8.0Vp-p (10msec./div.)
5
6
7
8
9

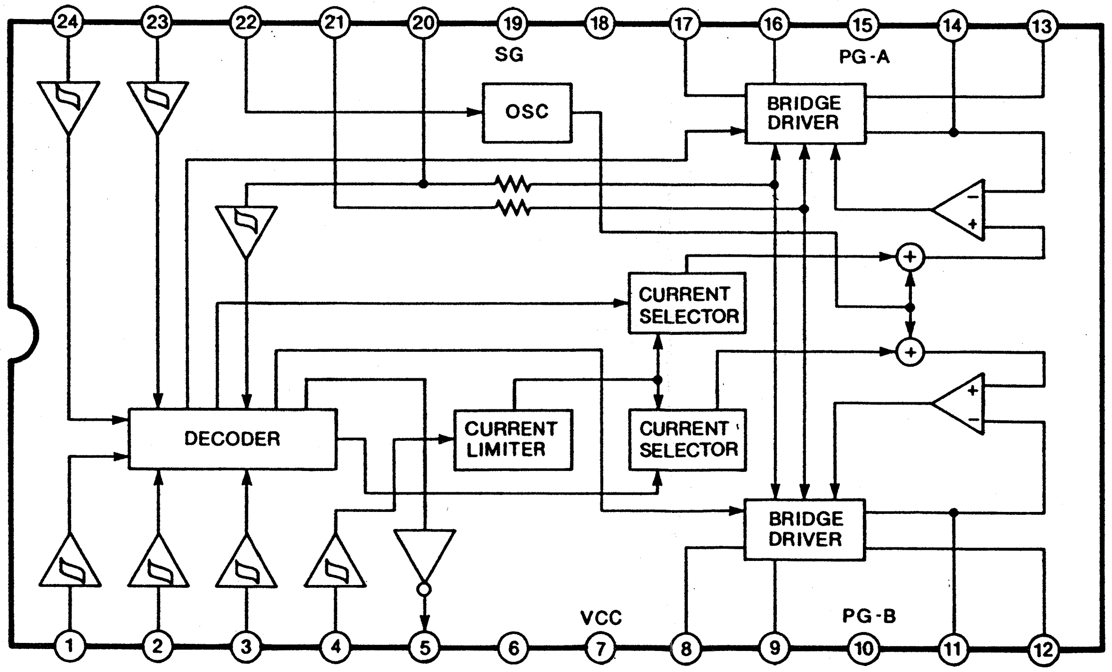
CHEMATIC DIAGRAM FOR
FER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

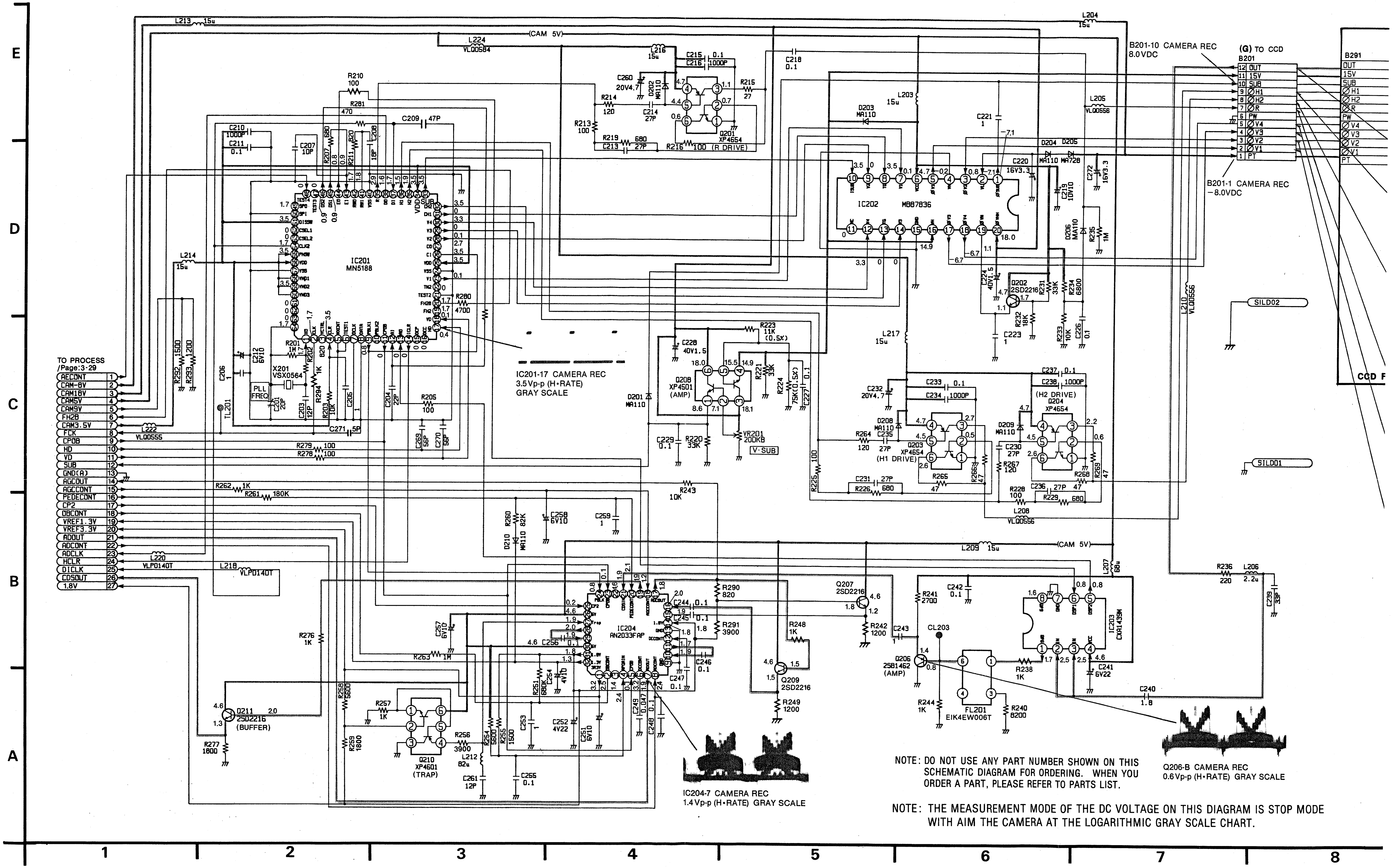
IC703 (AN2585FAP)


32
31
30
29
28
27
26
25
1
AMP
-6dBSW
ENCODER
CP1
CLAMP
24
2
DC CTL
CP2
HIGH LUMINANCE DETECT
BUFFER
23
3
GATE
Y
22
4
LUMINANCE DET
Y-GAIN CTL
LPF
21
5
V-REF
20
6
CONTRAST GAIN CTL
CP2
CP1
PULSE DIVIDER
19
LEVEL ADJ.
DC CTL
18
7
CP2
Y
DC CTL
PULSE DIVIDER
17
8
CP2
9
10
11
12
13
14
15
16

IC707 (TB6504F)


24
23
22
21
20
19
18
17
16
15
14
13
SG
PG-A
OSC
BRIDGE DRIVER
CURRENT SELECTOR
DECODER
CURRENT LIMITER
CURRENT SELECTOR
BRIDGE DRIVER
VCC
PG-B
1
2
3
4
5
6
7
8
9
10
11
12

3-10. CCD DRIVE SCHEMATIC DIAGRAM



E
D
C
B
A
1
2
3
4
5
6
7
8
TO PROCESS /Page:3-29
AECONT
CAM-8V
CAM18V
CAM5V
CAM9V
FH2B
CAM3.5V
FCK
CPOB
HD
VD
SUB
GND(A)
AGCOUT
AGCCONT
PEDECONT
CP2
OBCONT
VREF1.3V
VREF3.3V
ADOUT
ADCONT
ADCLK
HCLR
DICLK
CDSOUT
1.8V
IC201 MN5188
IC202 MB87836
IC203 CXA1439M
IC204 AN2033FAP
Q201 XP4654 (R DRIVE)
Q202 2SD2216
Q203 XP4654 (H1 DRIVE)
Q204 XP4654 (H2 DRIVE)
Q206 2SB1462 (AMP)
Q207 2SD2216
Q208 XP4501 (AMP)
Q209 2SD2216
Q210 XP4601 (TRAP)
Q211 2SD2216 (BUFFER)
X201 VSX0564
PLL FREQ
VR201 200KB
V·SUB
FL201 EIK4EW006T
CL203
TL201
(CAM 5V)
B201-10 CAMERA REC 8.0VDC
B201-1 CAMERA REC -8.0VDC
(G) TO CCD B201
OUT
15V
SUB
ØH1
ØH2
ØR
PW
ØV4
ØV3
ØV2
ØV1
PT
B291
CCD F
SILD01
SILD02

IC201-17 CAMERA REC
3.5Vp-p (H·RATE)
GRAY SCALE

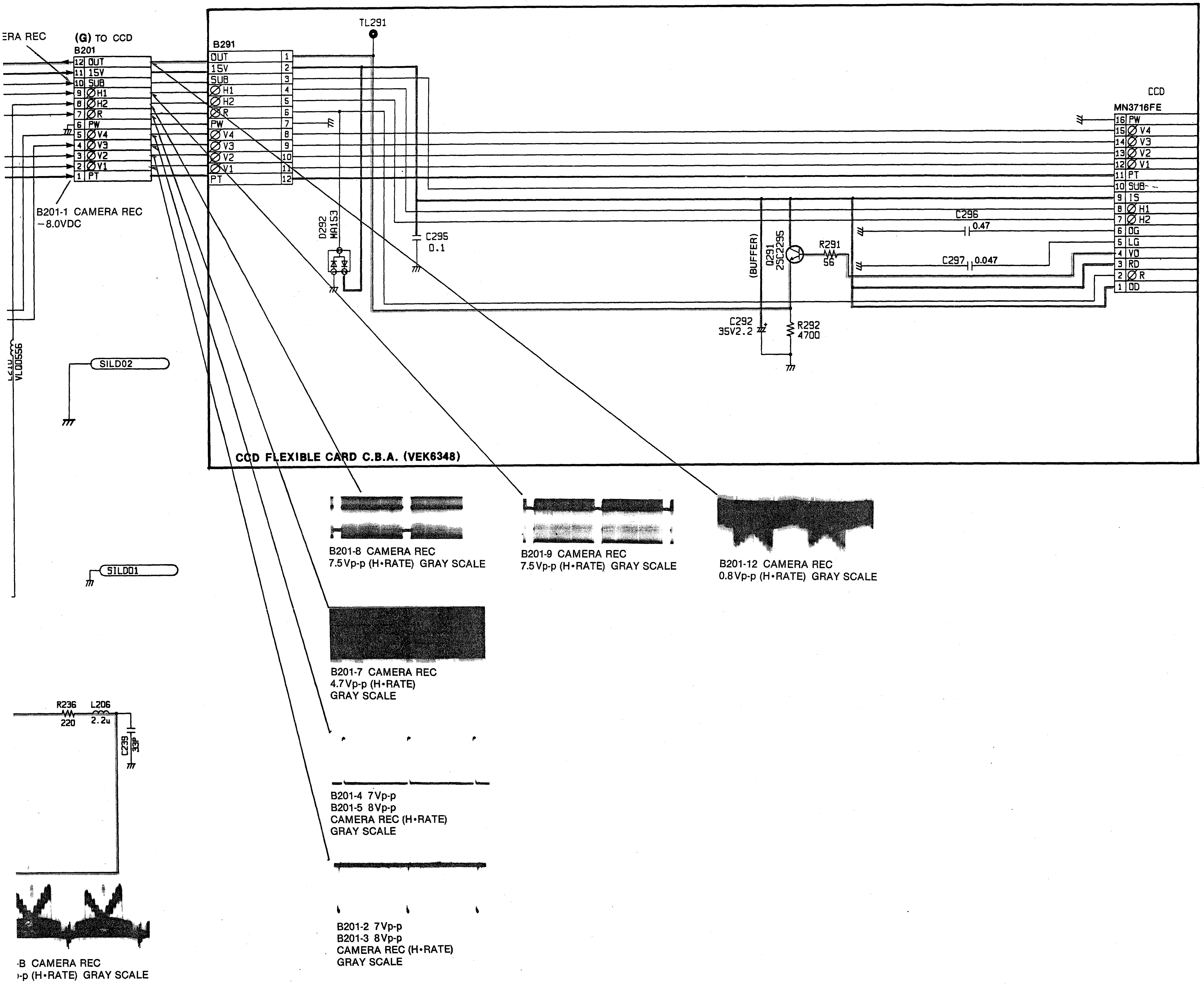
IC204-7 CAMERA REC
1.4Vp-p (H·RATE) GRAY SCALE

Q206-B CAMERA REC
0.6Vp-p (H·RATE) GRAY SCALE

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

—— VIDEO SIGNAL

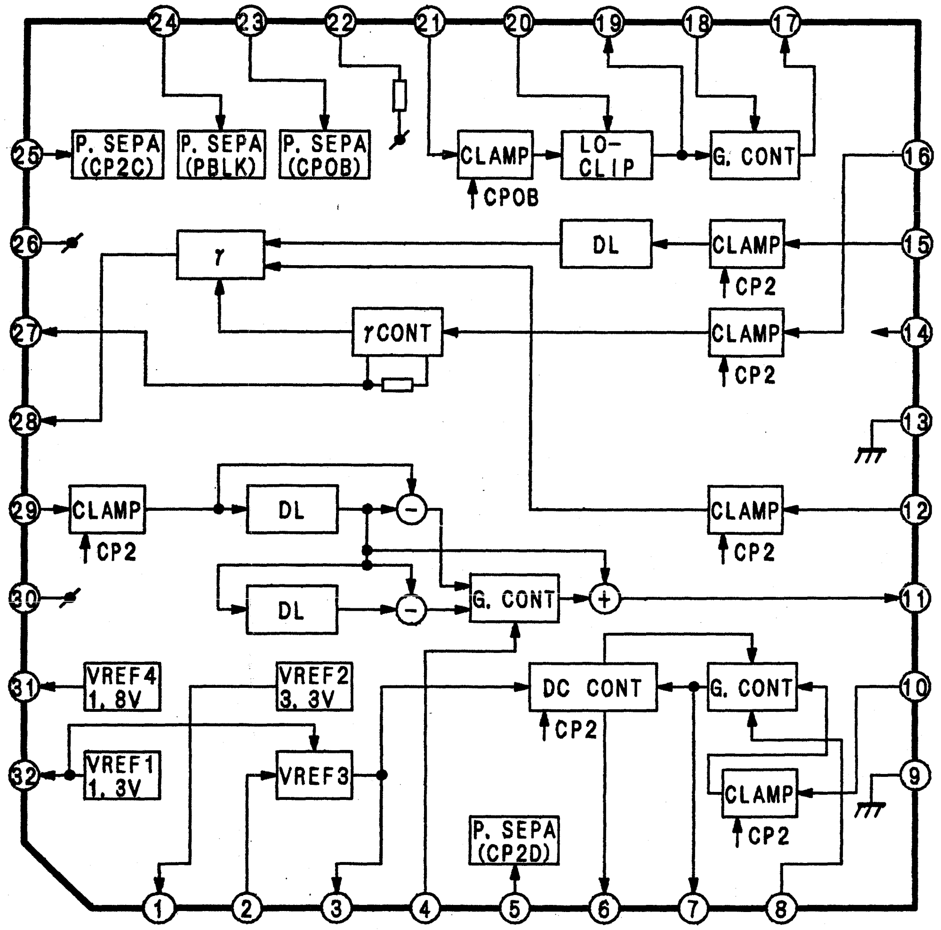


ERA REC
(G) TO CCD
B201
12 OUT
11 15V
10 SUB
9 ∅H1
8 ∅H2
7 ∅R
6 PW
5 ∅V4
4 ∅V3
3 ∅V2
2 ∅V1
1 PT
B201-1 CAMERA REC
−8.0VDC
TL291
B291
OUT
15V
SUB
∅H1
∅H2
∅R
PW
∅V4
∅V3
∅V2
∅V1
PT
CCD
MN3716FE
16 PW
15 ∅ V4
14 ∅ V3
13 ∅ V2
12 ∅ V1
11 PT
10 SUB
9 IS
8 ∅ H1
7 ∅ H2
6 OG
5 LG
4 VO
3 RD
2 ∅ R
1 OD
D292
MA153
C295
0.1
(BUFFER)
Q291
2SC2295
R291
56
C296
0.47
C297 0.047
C292
35V2.2
R292
4700
CCD FLEXIBLE CARD C.B.A. (VEK6348)
SILD02
SILD01
VL00556
R236
220
L206
2.2μ
C239
33P
B201-8 CAMERA REC
7.5Vp-p (H•RATE) GRAY SCALE
B201-9 CAMERA REC
7.5Vp-p (H•RATE) GRAY SCALE
B201-12 CAMERA REC
0.8Vp-p (H•RATE) GRAY SCALE
B201-7 CAMERA REC
4.7Vp-p (H•RATE)
GRAY SCALE
B201-4 7Vp-p
B201-5 8Vp-p
CAMERA REC (H•RATE)
GRAY SCALE
B201-2 7Vp-p
B201-3 8Vp-p
CAMERA REC (H•RATE)
GRAY SCALE
B CAMERA REC
p (H•RATE) GRAY SCALE

THIS DIAGRAM IS STOP MODE
SCALE CHART.

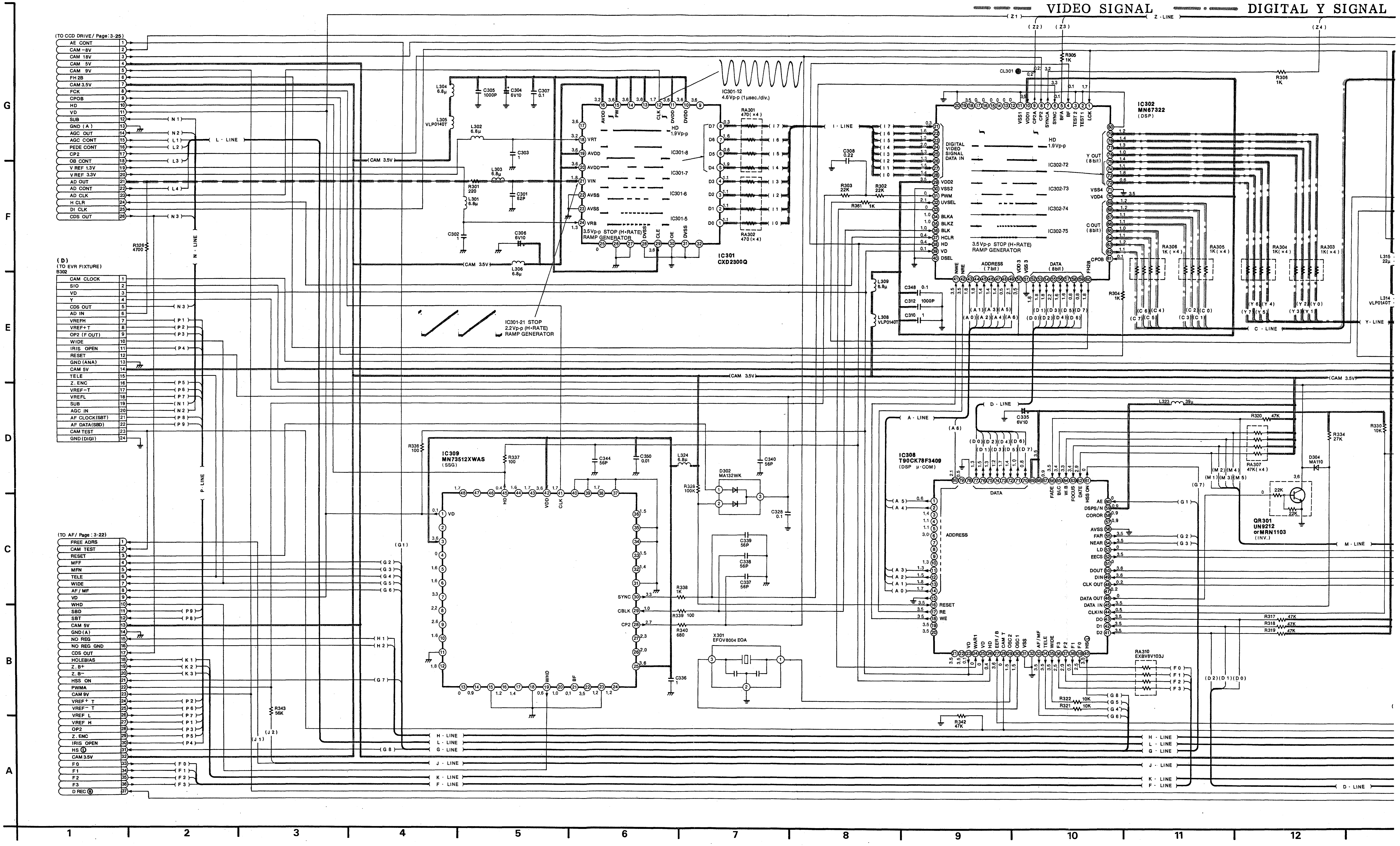
8 9 10 11 12

IC204 (AN2033FAP)

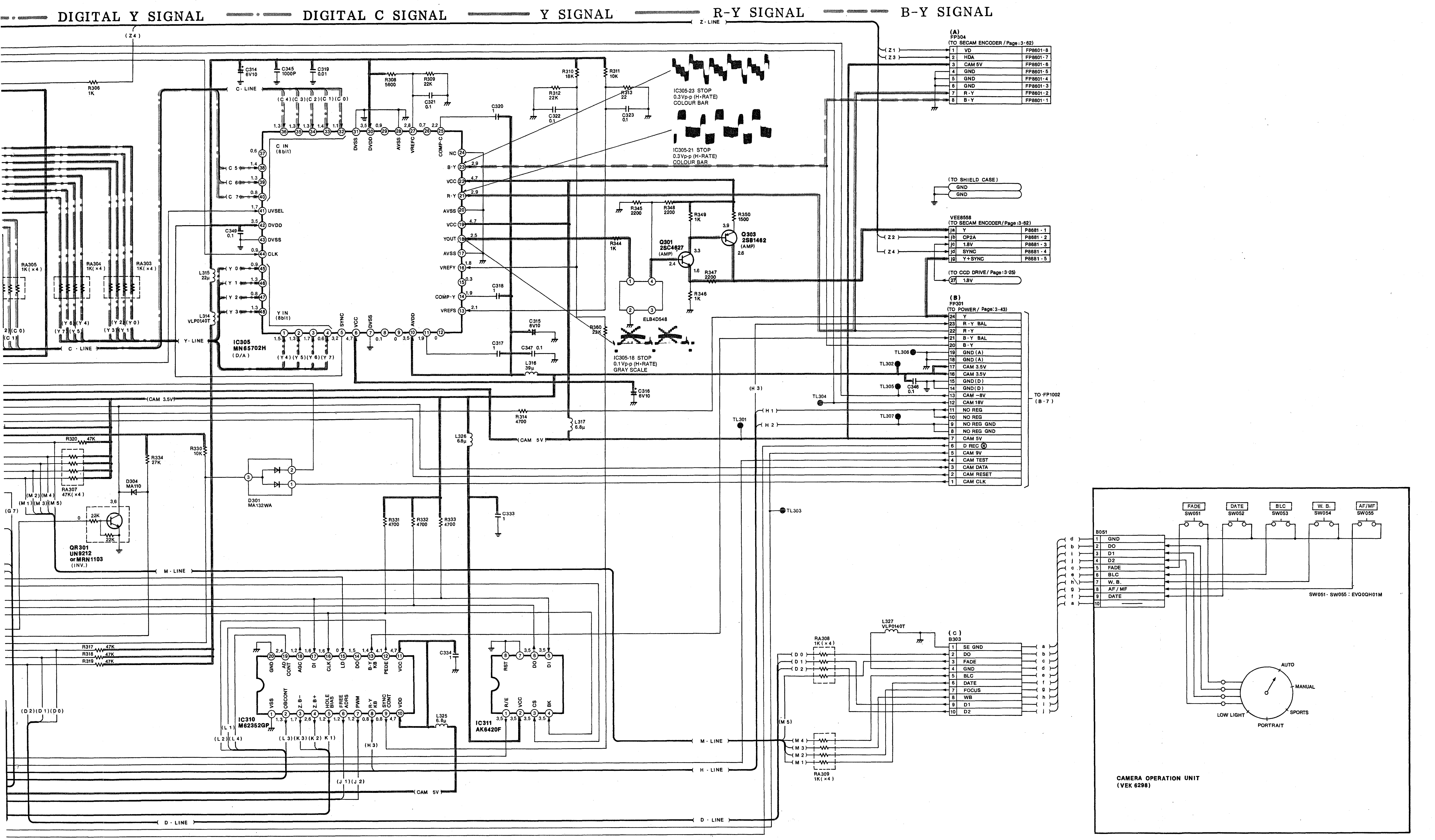


24
23
22
21
20
19
18
17
P. SEPA (CP2C)
P. SEPA (PBLK)
P. SEPA (CPOB)
CLAMP
CPOB
LO-CLIP
G. CONT
25
16
26
γ
DL
CLAMP
CP2
15
27
γCONT
CLAMP
CP2
14
28
13
29
CLAMP
CP2
DL
−
CLAMP
CP2
12
30
DL
−
G. CONT
+
11
31
VREF4 1.8V
VREF2 3.3V
DC CONT
CP2
G. CONT
10
32
VREF1 1.3V
VREF3
CLAMP
CP2
9
P. SEPA (CP2D)
1
2
3
4
5
6
7
8

3-11. PROCESS SCHEMATIC DIAGRAM


VIDEO SIGNAL
DIGITAL Y SIGNAL
(TO CCD DRIVE/ Page: 3-25)
AE CONT
CAM -8V
CAM 18V
CAM 5V
CAM 9V
FH 2B
CAM 3.5V
FCK
CPOB
HD
VD
SUB
GND (A)
AGC OUT
AGC CONT
PEDE CONT
CP2
OB CONT
V REF 1.3V
V REF 3.3V
AD OUT
AD CONT
AD CLK
H CLR
DI CLK
CDS OUT
(D)
(TO EVR FIXTURE)
B302
CAM CLOCK
SIO
VD
Y
CDS OUT
AD IN
VREFH
VREF+T
OP2 (F OUT)
WIDE
IRIS OPEN
RESET
GND (ANA)
CAM 5V
TELE
Z. ENC
VREF-T
VREFL
SUB
AGC IN
AF CLOCK(SBT)
AF DATA(SBD)
CAM TEST
GND (DIGI)
(TO AF/ Page: 3-22)
FREE ADRS
CAM TEST
RESET
MFF
MFN
TELE
WIDE
AF/MF
VD
WHD
SBD
SBT
CAM 5V
GND (A)
NO REG
NO REG GND
CDS OUT
HOLEBIAS
Z. B+
Z. B-
HSS ON
PWMA
CAM 9V
VREF+T
VREF-T
VREF L
VREF H
OP2
Z. ENC
IRIS OPEN
HS
CAM 3.5V
F0
F1
F2
F3
D REC
IC301
CXD2300Q
IC301-12
4.6Vp-p (1μsec./div.)
IC301-21 STOP
2.2Vp-p (H-RATE)
RAMP GENERATOR
3.5Vp-p STOP (H-RATE)
RAMP GENERATOR
HD
1.9Vp-p
IC301-8
IC301-7
IC301-6
IC301-5
RA301
470(×4)
RA302
470(×4)
IC302
MN67322
(DSP)
DIGITAL VIDEO SIGNAL DATA IN
Y OUT (8 bit)
C OUT (8 bit)
IC302-72
IC302-73
IC302-74
IC302-75
ADDRESS (7 bit)
DATA (8 bit)
RA306 1K(×4)
RA305 1K(×4)
RA304 1K(×4)
RA303 1K(×4)
IC309
MN73512XWAS
(SSG)
IC308
T90CK78F3409
(DSP μ-COM)
ADDRESS
DATA
D302
MA132WK
X301
EFOV8004 EOA
QR301
UN9212
or MRN1103
(INV.)
D304
MA110
RA307
47K(×4)
RA310
EXBV8V103J
L - LINE
N - LINE
P - LINE
I - LINE
Z - LINE
C - LINE
Y - LINE
D - LINE
A - LINE
M - LINE
H - LINE
G - LINE
J - LINE
K - LINE
F - LINE
(CAM 3.5V)
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

Back Page:
CCD DRIVE Section


DIGITAL Y SIGNAL
DIGITAL C SIGNAL
Y SIGNAL
R-Y SIGNAL
B-Y SIGNAL
Z - LINE
C - LINE
Y - LINE
M - LINE
H - LINE
D - LINE
CAM 3.5V
CAM 5V
IC305
MN65702H
(D/A)
C IN (8bit)
Y IN (8bit)
IC305-23 STOP
0.3Vp-p (H-RATE)
COLOUR BAR
IC305-21 STOP
0.3Vp-p (H-RATE)
COLOUR BAR
IC305-18 STOP
0.1Vp-p (H-RATE)
GRAY SCALE
Q301
2SC4627
(AMP)
Q303
2SB1462
(AMP)
ELB4D548
D301
MA132WA
D304
MA110
QR301
UN9212
or MRN1103
(INV.)
IC310
M62352GP
IC311
AK6420F
(A)
FP304
(TO SECAM ENCODER / Page: 3-62)
1 VD FP8601-8
2 HDA FP8601-7
3 CAM 5V FP8601-6
4 GND FP8601-5
5 GND FP8601-4
6 GND FP8601-3
7 R-Y FP8601-2
8 B-Y FP8601-1
(TO SHIELD CASE)
GND
GND
VEE8558
(TO SECAM ENCODER / Page: 3-62)
ja Y P8881-1
jb CP2A P8881-2
jc 1.8V P8881-3
jd SYNC P8881-4
je Y+SYNC P8881-5
(TO CCD DRIVE / Page: 3-25)
27 1.8V
(B)
FP301
(TO POWER / Page: 3-43)
24 Y
23 R-Y BAL
22 R-Y
21 B-Y BAL
20 B-Y
19 GND (A)
18 GND (A)
17 CAM 3.5V
16 CAM 3.5V
15 GND (D)
14 GND (D)
13 CAM -8V
12 CAM 18V
11 NO REG
10 NO REG
9 NO REG GND
8 NO REG GND
7 CAM 5V
6 D REC Ⓗ
5 CAM 9V
4 CAM TEST
3 CAM DATA
2 CAM RESET
1 CAM CLK
TO FP1002 (B-7)
(C)
B303
1 SE GND
2 DO
3 FADE
4 GND
5 BLC
6 DATE
7 FOCUS
8 WB
9 D1
10 D2
B051
1 GND
2 DO
3 D1
4 D2
5 FADE
6 BLC
7 W.B.
8 AF/MF
9 DATE
FADE SW051
DATE SW052
BLC SW053
W.B. SW054
AF/MF SW055
SW051 - SW055 : EVQ0QH01M
AUTO
MANUAL
SPORTS
PORTRAIT
LOW LIGHT
CAMERA OPERATION UNIT
(VEK 6298)
RA308 1K(×4)
RA309 1K(×4)
L327 VLP0140T
TL301
TL302
TL303
TL304
TL305
TL306
TL307
12
13
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23

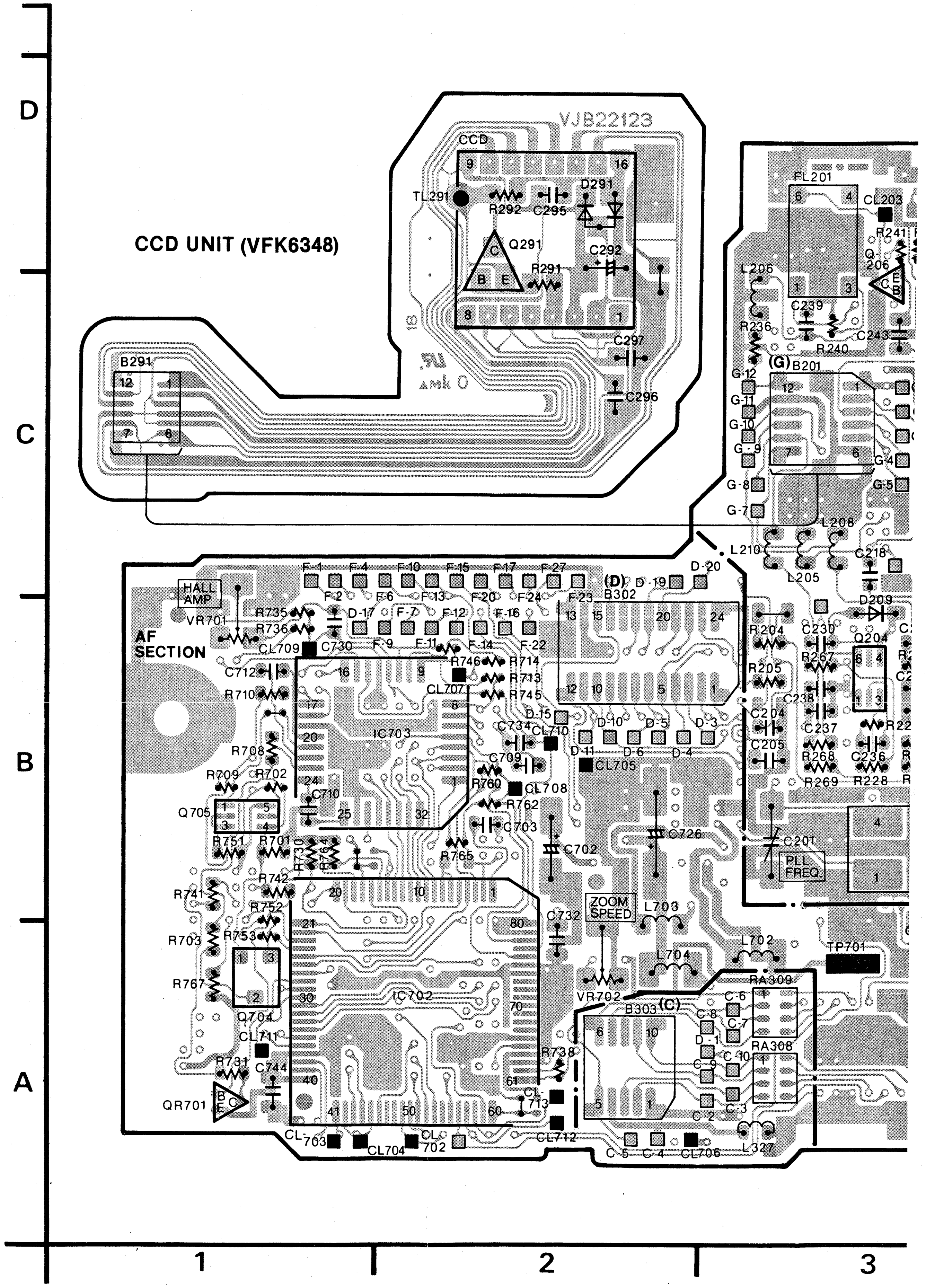
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

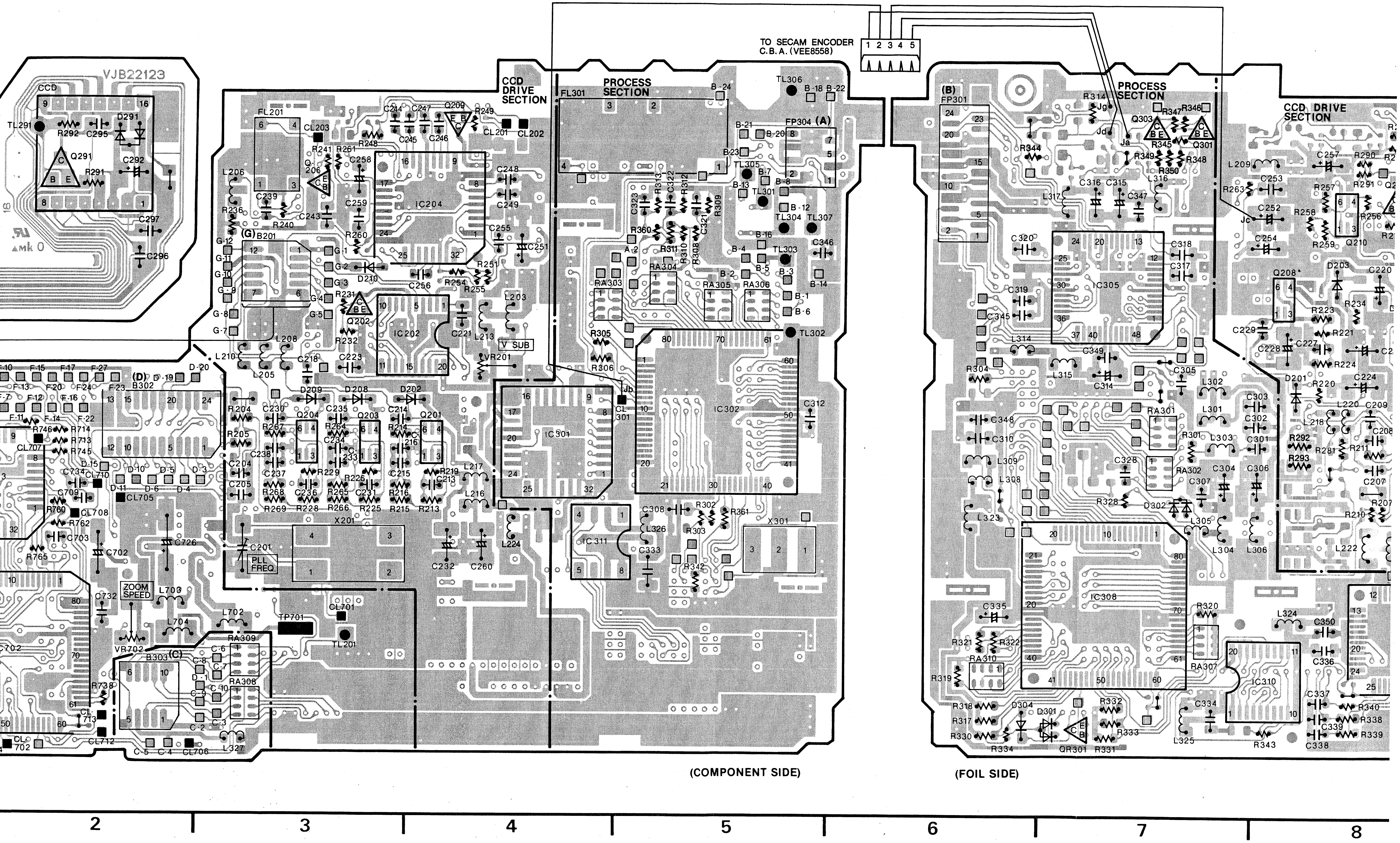
CAMERA MAIN C.B.A.	
Integrated Circuit	
IC201	B-9
IC202	C-4
IC203	C-9
IC204	C-4
IC301	B-4
IC302	B-5
IC305	C-7
IC308	B-7
IC309	A-8
IC310	A-8
IC311	B-4
IC702	A-2
IC703	B-2
IC704	B-10
IC705	B-10
IC706	A-10
IC707	B-9
IC708	A-9
IC709	A-10
Transistor	
Q201	B-4
Q202	C-3
Q203	B-3
Q204	B-3
Q206	C-3
Q207	D-8
Q208	C-8
Q209	D-4
Q210	C-8
Q211	C-8
Q301	D-7
Q303	D-7
Q701	A-10
Q702	A-9
Q703	A-9
Q704	A-1
Q705	B-1
Transistor & Resistor	
QR301	A-7
QR701	A-1
QR702	A-9
QR703	A-9
Diode	
D201	C-8
D202	B-4
D203	C-8
D204	C-8
D205	C-8
D206	C-8
D208	B-3
D209	B-3
D210	C-3
D301	A-7
D302	B-7
D304	A-6
D701	B-10
Test Point	
CL201	D-4
CL202	D-4
CL203	D-3
CL301	B-5
CL701	A-3
CL702	A-2
CL703	A-1
CL704	A-1
CL705	B-2
CL706	A-2
CL707	B-2
CL708	B-2
CL709	B-1
CL710	B-2
CL711	A-1
CL712	A-2
CL713	A-2
TL201	A-3
TL301	C-5
TL302	C-5
TL303	C-5
TL304	C-5
TL305	D-5
TL306	D-5
TL307	C-5
TP701	A-3
Adjustment	
C201	B-3
VR201	C-4
VR701	B-1
VR702	A-2
Connector	
B201	C-3
B302	B-2
B303	A-2
FP301	D-6
FP304	D-5
FP701	B-9
Crystal Oscillator	
X201	B-3
X301	B-5
X701	A-9
X702	A-10
Filter	
FL201	D-3
FL301	D-4
Capacitor	
C203	B-9
C204	B-3
C205	B-3
C206	B-9
C207	B-8
C208	B-8
C209	B-8
C210	B-9
C211	B-9
C212	B-9
C213	B-4
C214	B-3
C215	B-3
C216	B-4
C218	C-3
C219	C-8
C220	C-8
C221	C-4
C223	C-3
C224	C-8
C226	C-8
C227	C-8
C228	C-8
C229	C-8
C230	B-3
C231	B-3
C232	B-4
C233	B-3
C234	B-3
C235	B-3
C236	B-3
C237	B-3
C238	B-3
C239	C-3
C240	C-9
C241	D-9
C242	D-9
C243	C-3
C244	D-3
C245	D-4
C246	D-4
C247	D-4
C248	D-4
C249	C-4
C251	C-4
C252	C-8
C253	C-8
C254	C-8
C255	C-4
C256	C-4
C257	D-8
C258	D-3
C259	C-3
C260	B-4
C261	C-8
C269	C-9
C270	C-9
C271	B-9
C272	C-9
C301	B-8
C302	B-8
C303	B-8
C304	B-7
C305	C-7
C306	B-8
C307	B-7
C308	B-5
C310	B-6
C312	B-5
C314	C-7
C315	C-7
C316	C-7
C317	C-7
C318	C-7
C319	C-6
C320	C-6
C321	C-5
C322	C-5
C323	C-5
C328	B-7
C333	B-5
C334	A-7
C335	A-6
C336	A-8
C337	A-8
C338	A-8
C339	A-8
C340	A-9
C344	A-9
C345	C-6
C348	B-6
C349	C-7
C350	A-8
C702	B-2
C703	B-2
C704	B-10
C705	B-10
C706	B-10
C707	B-10
C708	B-10
C709	B-2
C710	B-1
C712	B-1
C713	B-10
C714	B-10
C715	B-10
C716	B-10
C717	B-10
C718	B-10
C719	B-10
C720	B-10
C721	A-10
C722	B-10
C723	A-10
C724	A-10
C726	B-2
C727	B-9
C729	B-10
C730	B-1
C731	B-9
C732	A-2
C733	A-9
C734	B-2
C736	A-9
C739	B-9
C740	B-10
C742	A-9
C743	A-9
C744	A-1
Coil	
L203	C-4
L204	C-8
L205	C-3
L206	C-3
L207	D-9
L208	C-3
L209	D-8
L210	C-3
L212	C-8
L213	C-4
L214	B-8
L216	B-4
L217	B-4
L218	B-8
L220	B-8
L222	B-8
L224	B-4
L301	B-7
L302	C-7
L303	B-7
L304	B-7
L305	B-7
L306	B-8
L308	B-6
L309	B-6
L314	C-6
L315	C-7
L316	C-7
L317	C-7
L323	B-6
L324	A-8
L325	A-7
L326	B-5
L327	A-3
L702	A-2
L703	A-3
L704	A-2
Resistor	
R201	B-9
R202	B-9
R203	B-9
R204	B-3
R205	B-3
R207	B-8
R209	B-8
R210	B-8
R211	B-8
R213	B-4
R214	B-3
R215	B-3
R216	B-3
R219	B-4
R220	C-8
R221	C-8
R223	C-8
R224	C-8
R225	B-3
R226	B-3
R228	B-3
R229	B-3
R231	C-3
R232	C-3
R233	C-8
R234	C-8
R235	C-8
R236	C-3
R238	C-9
R240	C-3
R241	D-3
R242	D-8
R243	D-8
R244	D-8
R248	D-3
R249	D-4
R251	C-4
R254	C-4
R255	C-4
R256	C-8
R257	C-8
R258	C-8
R259	C-8
R260	C-3
R261	D-3
R262	D-8
R263	C-6
R264	B-3
R265	B-3
R266	B-3
R267	B-3
R268	B-3
R269	B-3
R276	C-8
R277	C-8
R278	C-9
R279	C-9
R280	C-9
R281	B-8
R290	D-8
R291	C-8
R292	B-8
R293	B-8
R294	B-9
R301	B-7
R302	B-5
R303	B-5
R304	C-6
R305	C-4
R306	C-4
R308	C-5
R309	C-5
R310	C-5
R311	C-5
R312	C-5
R313	C-5
R314	D-7
R317	A-6
R318	A-6
R319	A-6
R320	A-7
R321	A-6
R322	A-6
R326	B-9
R328	B-7
R330	A-6
R331	A-7
R332	A-7
R333	A-7
R334	A-6
R336	A-9
R337	A-9
R338	A-8
R339	A-8
R340	A-8
R342	B-5
R343	A-8
R344	D-6
R345	D-7
R346	D-7
R347	D-7
R348	D-7
R349	D-7
R350	D-7
R360	C-5
R361	B-5
R701	B-1
R702	B-1
R703	A-1
R704	A-10
R705	A-10
R706	A-10
R707	A-10
R708	B-1
R709	B-1
R710	B-1
R711	A-10
R712	A-10
R713	B-2
R714	B-2
R715	B-10
R716	B-10
R717	B-10
R718	B-10
R719	B-10
R720	B-10
R721	A-10
R722	B-10
R723	B-10
R724	B-10
R725	A-10
R726	B-9
R727	B-9
R728	B-9
R729	B-9
R730	B-1
R731	A-1
R732	A-9
R733	B-10
R734	B-9
R735	B-1
R736	B-1
R737	A-10
R738	A-2
R739	A-10
R740	B-10
R741	B-1
R742	B-1
R743	B-10
R744	A-9
R745	B-2
R746	B-2
R750	A-10
R751	B-1
R752	B-1
R753	A-1
R755	B-10
R756	B-10
R757	A-10
R758	A-10
R760	B-2
R761	A-9
R762	B-2
R763	A-10
R764	B-1
R765	B-2
R766	A-9
R767	A-1
R768	B-10
R770	A-9
R774	A-10
Resistor Array	
RA301	B-7
RA302	B-7
RA303	C-4
RA304	C-5
RA305	C-5
RA306	C-5
RA307	A-7
RA308	A-3
RA309	A-3
RA310	A-6

ADDRESS INFORMATION

3-12. CAMERA MAIN (CCD DRIVE, PROCESS & AUTO FOCUS Section

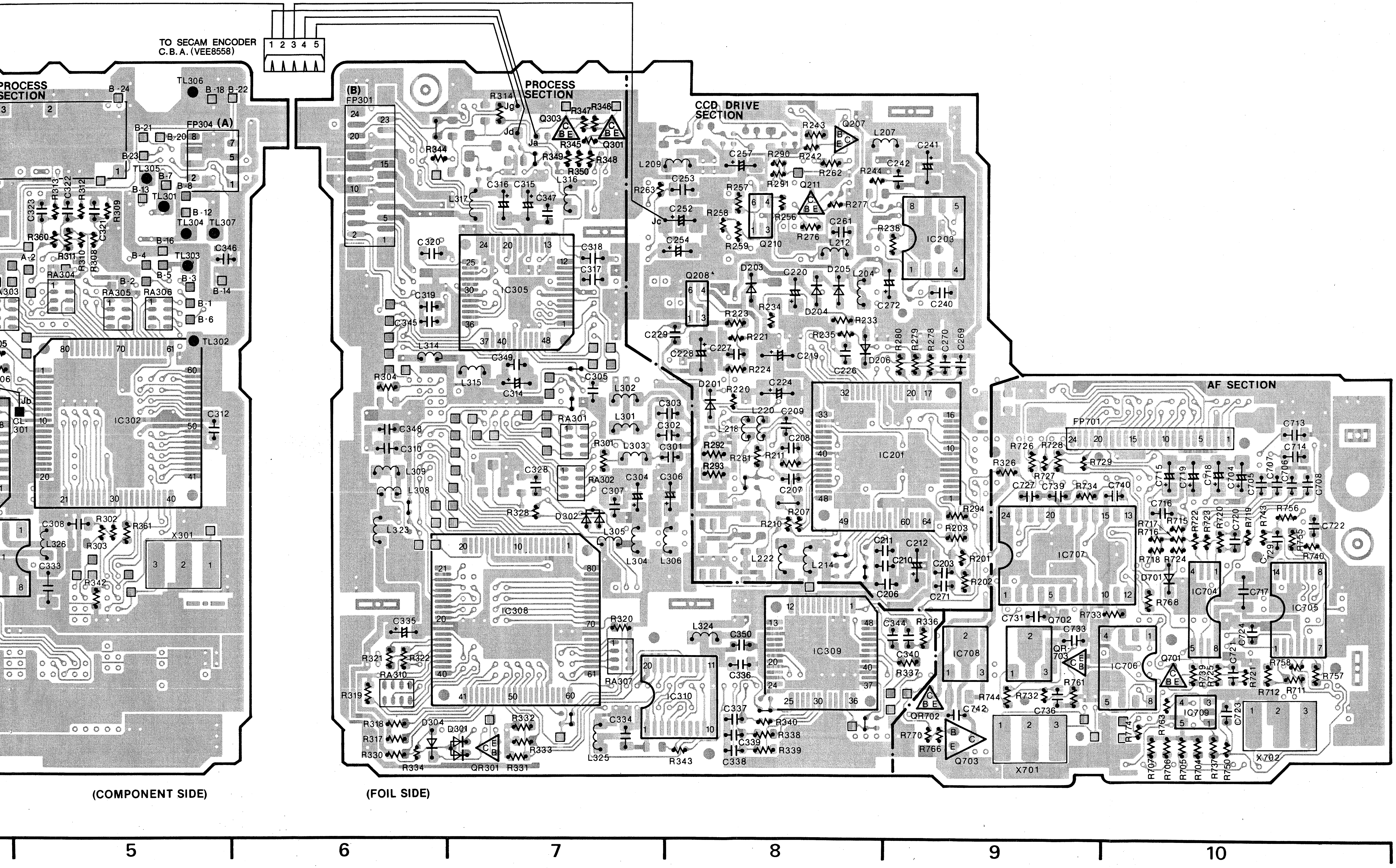

CCD UNIT (VFK6348)
VJB22123
CCD
TL291
R292
C295
D291
Q291
R291
C292
C297
C296
B291
FL201
CL203
R241
Q206
L206
R236
C239
R240
C243
B201
L208
L210
L205
C218
D209
HALL AMP
VR701
AF SECTION
R735
R736
CL709
C730
C712
R710
CL707
R746
R714
R713
R745
B302
IC703
C734
CL710
CL705
C709
R708
R709
R702
C710
Q705
R760
CL708
R762
C703
R751
R701
R730
R764
R765
C702
C726
C201
PLL FREQ.
R742
R741
R752
R703
R753
R767
Q704
CL711
R731
C744
QR701
IC702
C732
ZOOM SPEED
L703
L704
L702
VR702
B303
R738
CL713
RA309
RA308
TP701
CL703
CL704
CL702
CL712
CL706
L327
R204
C230
Q204
R205
R267
C238
C204
C237
C205
R268
C236
R269
R228
D
C
B
A
1
2
3

RIVE, PROCESS & AUTO FOCUS Section) C.B.A. (VEP23163D)


VJB22123
CCD
TO SECAM ENCODER
C.B.A. (VEE8558)
1 2 3 4 5
CCD DRIVE SECTION
PROCESS SECTION
PROCESS SECTION
CCD DRIVE SECTION
IC204
IC202
IC301
IC302
IC311
IC305
IC308
IC310
X201
X301
PLL FREQ.
V SUB
ZOOM SPEED
TP701
(A)
(B)
(C)
(D)
(G)
FP301
FP304
FL201
FL301
B201
B302
B303
2
3
4
5
6
7
8

(COMPONENT SIDE)

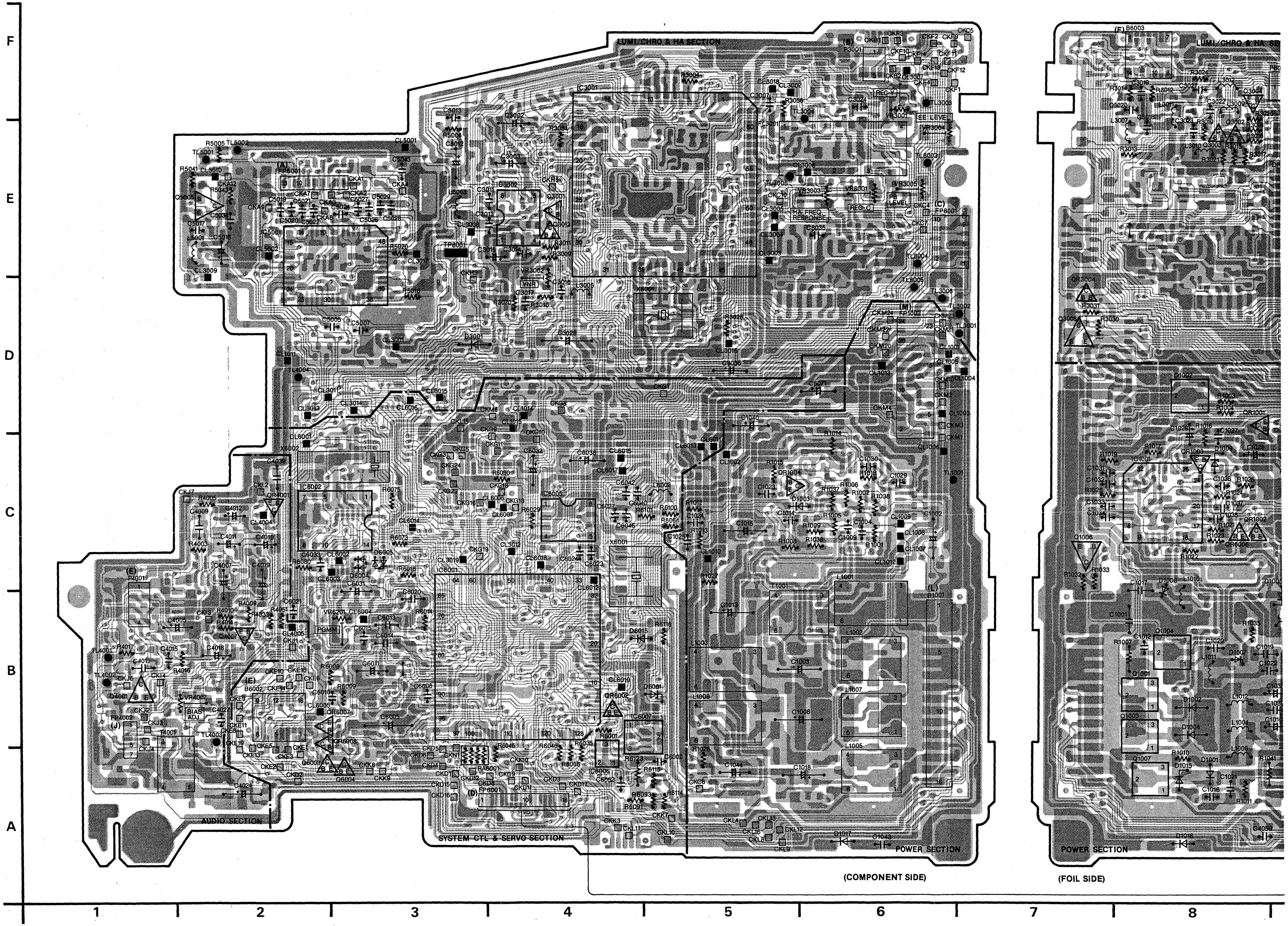
(FOIL SIDE)


TO SECAM ENCODER
C.B.A. (VEE8558)
1 2 3 4 5
PROCESS SECTION
PROCESS SECTION
CCD DRIVE SECTION
AF SECTION
FP301
FP304 (A)
(B)
FP701
IC302
IC305
IC308
IC309
IC310
IC201
IC203
IC704
IC705
IC706
IC707
IC708
IC709
X301
X701
X702
TL301
TL302
TL303
TL304
TL305
TL306
TL307
Q201
Q207
Q208
Q210
Q211
Q301
Q303
Q701
Q702
Q703
QR301
QR702
QR703
RA301
RA302
RA304
RA305
RA306
RA307
RA310
CL-301
D201
D203
D204
D205
D206
D301
D302
D304
D701
5
6
7
8
9
10

(COMPONENT SIDE)

(FOIL SIDE)

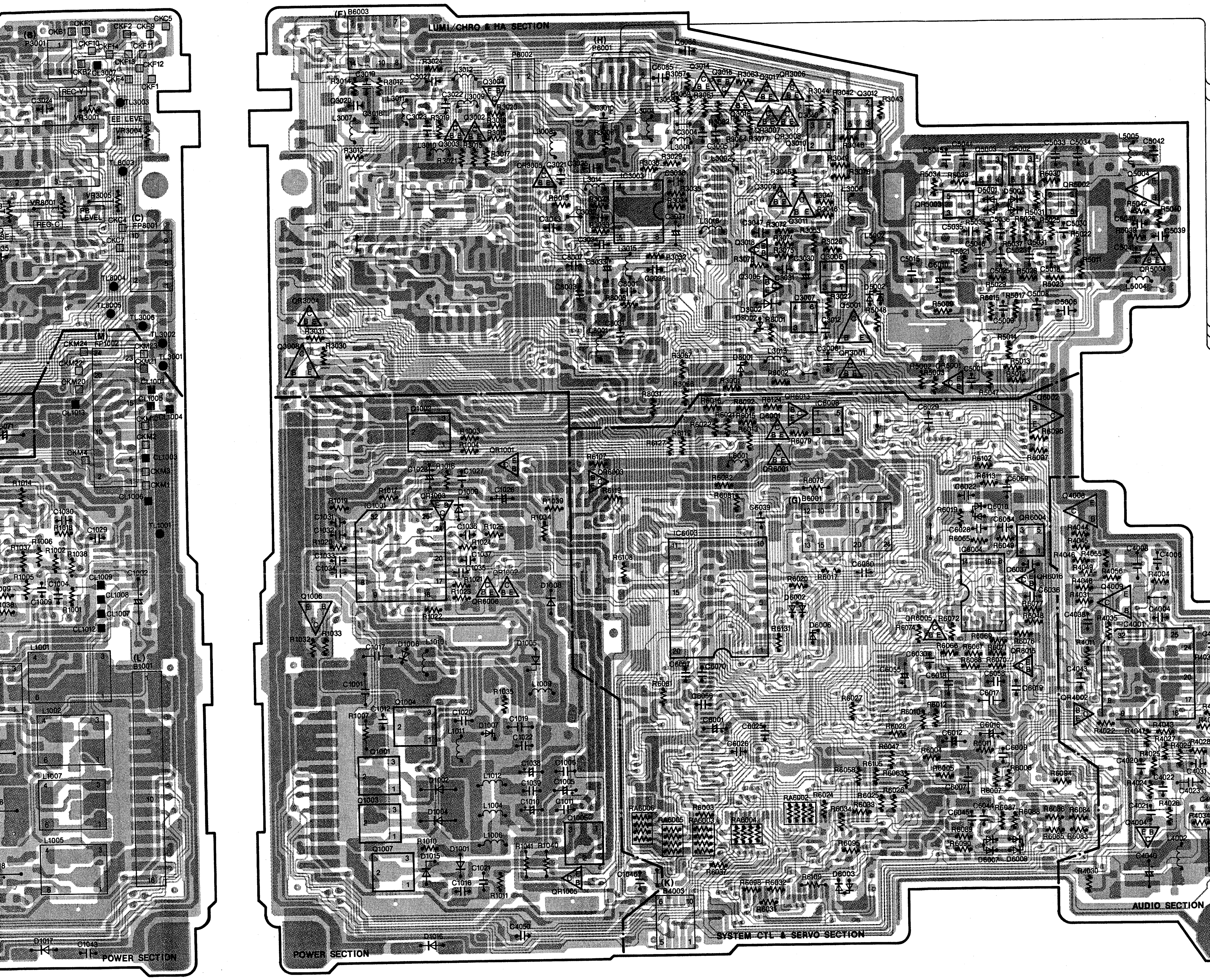
3-13. VTR MAIN (POWER, SYSTEM CONTROL AND SERVO, LUMINANCE/CHROMINANCE AND HEAD AMP & AUDIO Section) C.B


F
E
D
C
B
A
1
2
3
4
5
6
7
8
LUMI/CHRO & HA SECTION
AUDIO SECTION
SYSTEM CTL & SERVO SECTION
POWER SECTION
(COMPONENT SIDE)
(FOIL SIDE)
IC3001
IC6001
IC6002
IC1001
EE LEVEL
REC-C
REC-Y
PB-FREQ RESPONSE
YNR
PGMM
BIAS ADJ

Back Page:
CAMERA MAIN C.B.A. Section

VTR MAIN C.B.A. Section

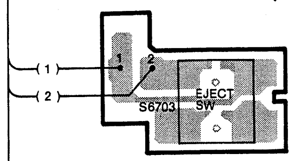
NANCE AND HEAD AMP & AUDIO Section) C.B.A. (VEP03A76B)


LUMI/CHRO & HA SECTION
POWER SECTION
POWER SECTION
SYSTEM CTL & SERVO SECTION
AUDIO SECTION

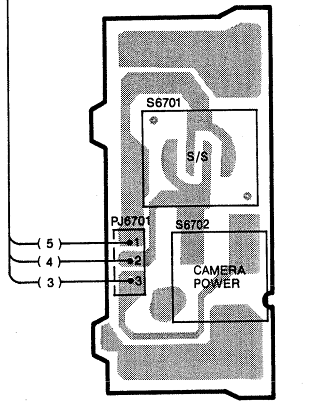
(COMPONENT SIDE)

(FOIL SIDE)

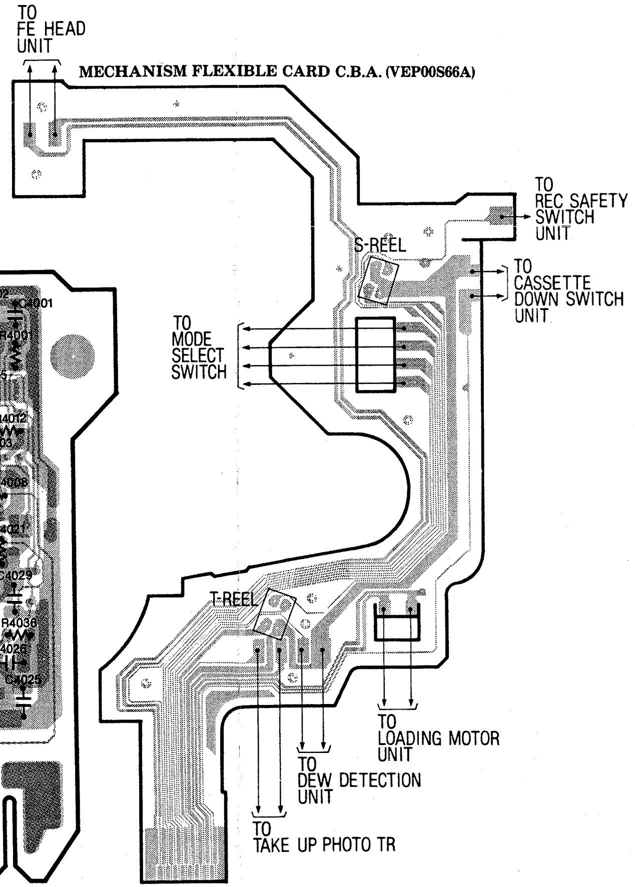
EJECT SW C.B.A. (VEK6391)


1
2
S6703
EJECT SW

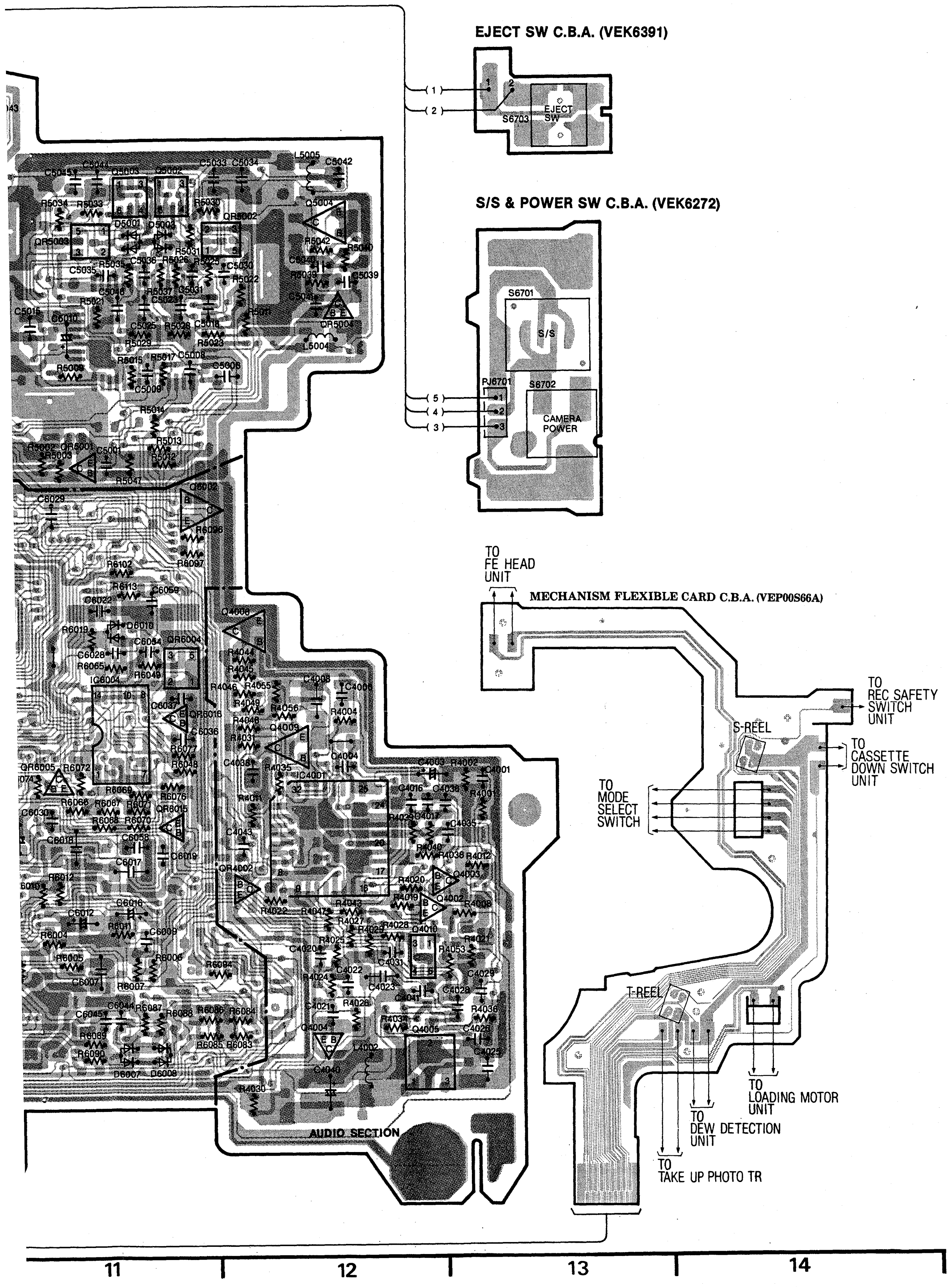
S/S & POWER SW C.B.A. (VEK6272)


S6701
S/S
PJ6701
S6702
CAMERA POWER
5
4
3

MECHANISM FLEXIBLE CARD C.B.A. (VEP00S66A)


TO FE HEAD UNIT
TO REC SAFETY SWITCH UNIT
S-REEL
TO CASSETTE DOWN SWITCH UNIT
TO MODE SELECT SWITCH
T-REEL
TO LOADING MOTOR UNIT
TO DEW DETECTION UNIT
TO TAKE UP PHOTO TR

6 7 8 9 10 11 12 13 14


AUDIO SECTION
S-REEL
T-REEL
TO FE HEAD UNIT
TO REC SAFETY SWITCH UNIT
TO CASSETTE DOWN SWITCH UNIT
TO MODE SELECT SWITCH
TO LOADING MOTOR UNIT
TO DEW DETECTION UNIT
TO TAKE UP PHOTO TR
S6703
EJECT SW
S6701
S/S
S6702
CAMERA POWER
PJ6701
11
12
13
14

EJECT SW C.B.A. (VEK6391)

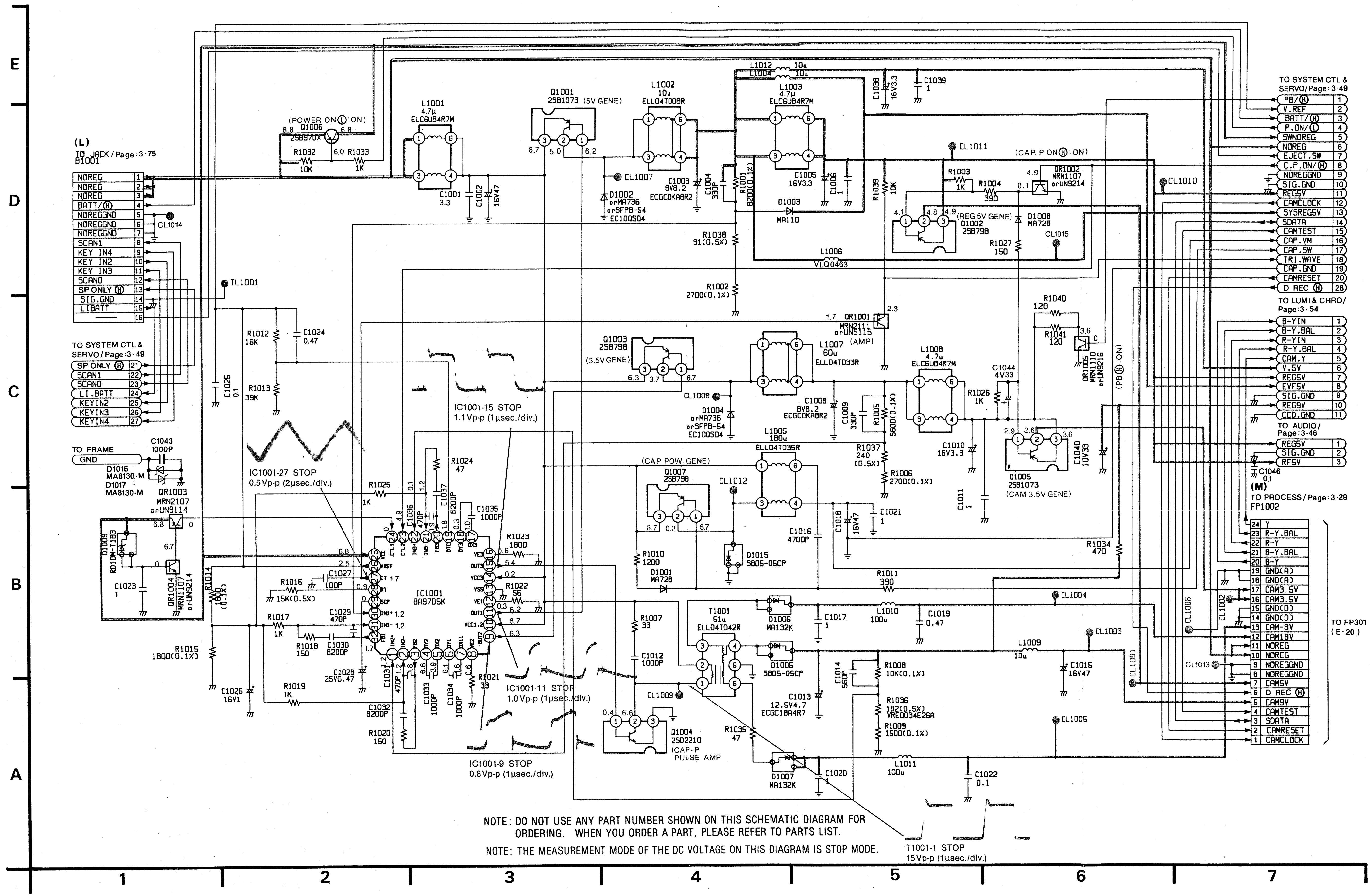
S/S & POWER SW C.B.A. (VEK6272)

MECHANISM FLEXIBLE CARD C.B.A. (VEP00S66A)

VTR MAIN C.B.A.	
Integrated Circuit	
IC1001	C-8
IC3001	F-4
IC3002	E-4
IC3003	E-9
IC4001	C-12
IC5001	E-2
IC6001	B-4
IC6002	C-2
IC6003	C-10
IC6004	C-11
IC6005	C-4
IC6006	A-4
IC6007	B-4
IC6008	D-10
Transistor	
Q1001	B-8
Q1002	D-8
Q1003	B-8
Q1004	B-8
Q1005	B-9
Q1006	C-7
Q1007	A-8
Q3001	E-4
Q3002	E-8
Q3003	E-8
Q3004	F-8
Q3005	E-10
Q3006	E-10
Q3007	D-10
Q3008	D-7
Q3009	E-10
Q3010	E-10
Q3011	E-10
Q3012	F-10
Q3013	E-4
Q3014	F-10
Q3015	F-10
Q3016	F-10
Q3017	F-10
Q3018	E-10
Q4001	B-1
Q4002	B-12
Q4003	B-12
Q4004	A-12
Q4005	A-12
Q4007	B-2
Q4008	C-12
Q4009	C-12
Q4010	B-12
Q5001	D-10
Q5002	E-11
Q5003	E-11
Q5004	E-12
Q5005	E-2
Q6001	D-10
Q6002	D-11
Q6003	A-2
Q6004	A-3
Transistor & Resistor	
QR1001	D-8
QR1002	C-8
QR1003	C-8
QR1004	C-5
QR1005	A-9
QR3001	D-10
QR3004	D-7
QR3005	E-9
QR3006	F-10
QR3007	F-10
QR3008	F-10
QR4001	C-2
QR4002	B-12
QR5001	D-11
QR5002	E-12
QR5003	E-11
QR5004	E-12
QR6001	D-10
QR6002	B-4
QR6003	C-9
QR6004	C-11
QR6005	C-11
QR6006	C-8
QR6007	B-2
QR6008	B-2
QR6013	D-10
QR6015	B-11
QR6016	C-11
Test Point	
CL1001	D-6
CL1002	C-5
CL1003	D-6
CL1004	D-6
CL1005	D-6
CL1006	C-6
CL1007	C-6
CL1008	C-6
CL1009	C-6
CL1010	C-5
CL1011	D-2
CL1012	C-6
CL1013	D-6
CL1014	D-4
CL1015	D-4
CL3001	D-3
CL3002	F-5
CL3003	E-5
CL3004	E-5
CL3005	E-5
CL3006	E-6
CL3007	F-6
CL3008	E-3
CL3009	E-2
CL3010	E-2
CL3011	D-2
CL3012	C-4
CL3013	D-2
CL3014	D-3
CL3015	D-3
CL3016	D-5
CL3017	E-3
CL3018	F-5
CL3019	C-3
CL4004	C-2
CL4005	B-2
CL5001	E-3
CL5002	E-2
CL6001	C-2
CL6002	C-3
CL6003	C-2
CL6004	B-3
CL6005	B-2
CL6006	C-4
CL6007	C-4
CL6010	B-4
CL6011	C-5
CL6012	C-4
CL6013	C-5
CL6014	C-3
CL6015	C-4
CL6016	D-3
CL6017	C-4
CL6018	C-4
TL1001	C-6
TL3001	D-6
TL3002	D-6
TL3003	F-6
TL3004	F-6
TL3005	E-5
TL3006	D-6
TL4001	B-1
TL4002	B-1
TL4003	B-2
TL4004	D-2
TL5001	E-2
TL5002	E-2
TL8003	E-6
TL8004	E-6
TL8005	D-6
TP8001	E-3
Adjustment	
VR3001	F-6
VR3002	E-4
VR3003	E-6
VR3004	E-6
VR3005	E-6
VR4002	B-2
VR6201	B-3
VR8001	E-6
Connector	
B1001	B-6
B4003	A-9
B6001	C-10
B6002	B-2
B6003	F-8
FP1002	D-6
FP4002	B-1
FP5001	E-2
FP6001	A-4
FP8001	E-6
P3001	F-6
P4001	C-1
P6001	F-9
P6002	F-9

ADDRESS INFORMATION

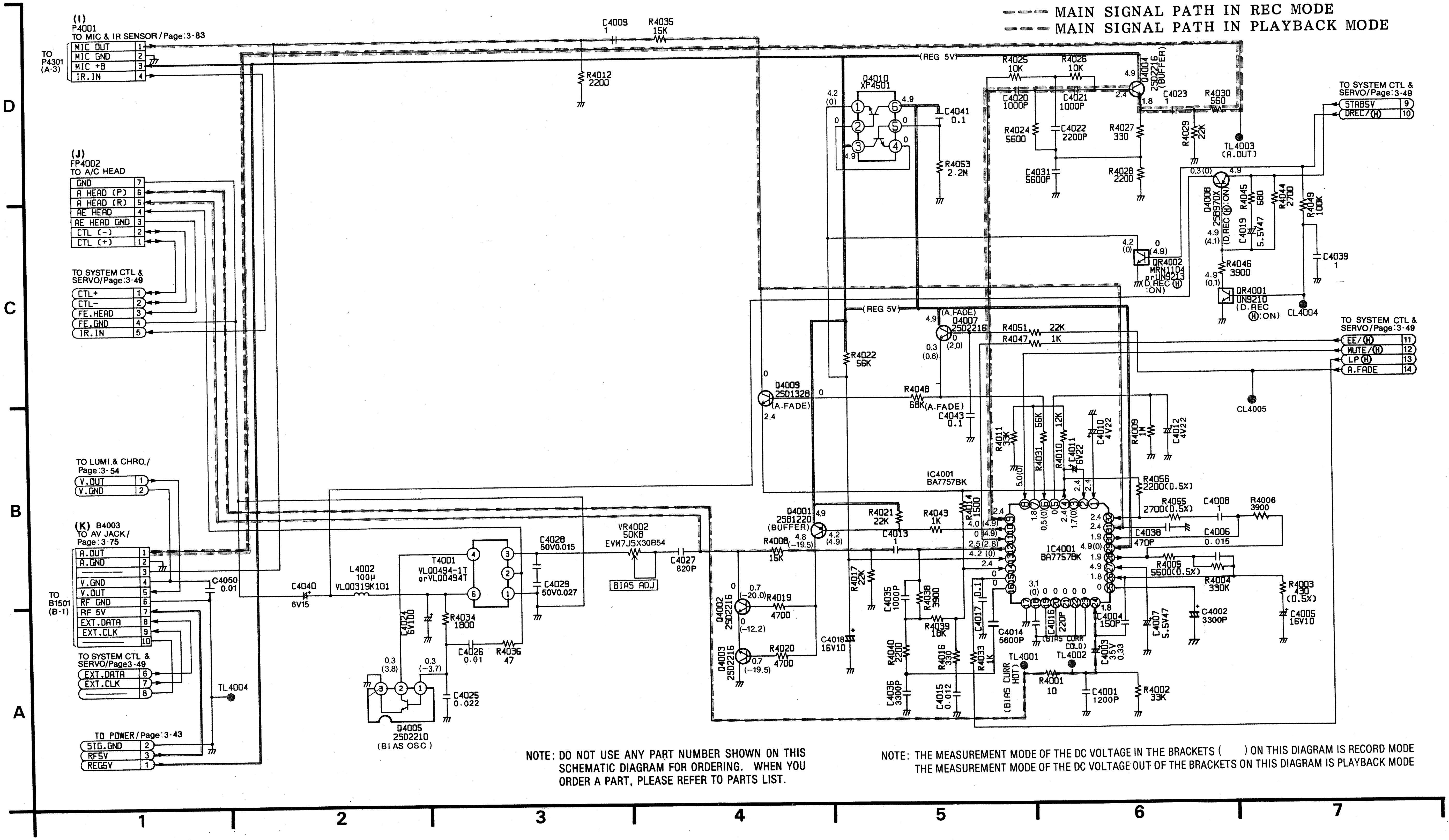
3-14. POWER SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
(L)
TO JACK / Page: 3-75
B1001
1 NOREG
2 NOREG
3 NOREG
4 BATT/Ⓗ
5 NOREGGND
6 NOREGGND
7 NOREGGND
8 SCAN1
9 KEY IN4
10 KEY IN2
11 KEY IN3
12 SCAN0
13 SP ONLY Ⓗ
14 SIG.GND
15 LIBATT
16
CL1014
TL1001
TO SYSTEM CTL & SERVO / Page: 3-49
21 SP ONLY Ⓗ
22 SCAN1
23 SCAN0
24 LI.BATT
25 KEYIN2
26 KEYIN3
27 KEYIN4
TO FRAME
GND
C1043 1000P
D1016 MA8130-M
D1017 MA8130-M
QR1003 MRN2107 or UN9114
D1009 RD10M-T1B3
C1023 1
QR1004 MRN1107 or UN9214
R1014 180 (0.1%)
R1015 1800 (0.1%)
(POWER ON Ⓛ: ON)
Q1006 2SB970X
R1032 10K
R1033 1K
L1001 4.7μ ELC6UB4R7M
C1001 3.3
C1002 16V47
Q1001 2SB1073 (5V GENE)
L1002 10u ELL04T008R
CL1007
D1002 or MA736 or SFPB-54 EC10QS04
C1003 8V8.2 ECGC0KA8R2
C1004 330P
R1001 8200 (0.1%)
L1012 10u
L1004 10u
L1003 4.7μ ELC6UB4R7M
C1005 16V3.3
C1006 1
D1003 MA110
R1038 91 (0.5%)
R1002 2700 (0.1%)
L1006 VLQ0463
C1038 16V3.3
C1039 1
R1039 10K
CL1011
(CAP. P ON Ⓗ: ON)
R1003 1K
R1004 390
QR1002 MRN1107 or UN9214
CL1010
(REG 5V GENE)
Q1002 2SB798
D1008 MA728
CL1015
R1027 150
R1012 16K
C1024 0.47
C1025 0.1
R1013 39K
IC1001-15 STOP 1.1 Vp-p (1μsec./div.)
IC1001-27 STOP 0.5 Vp-p (2μsec./div.)
IC1001-11 STOP 1.0 Vp-p (1μsec./div.)
IC1001-9 STOP 0.8 Vp-p (1μsec./div.)
IC1001 BA9705K
R1024 47
R1025 1K
C1036 470P
C1037 8200P
C1035 1000P
R1023 1800
R1022 56
R1016 15K (0.5%)
C1027 100P
R1017 1K
C1029 470P
R1018 150
C1030 8200P
C1028 25V0.47
C1026 16V1
R1019 1K
C1031 470P
C1033 1000P
C1034 1000P
R1021 33
C1032 8200P
R1020 150
Q1003 2SB798 (3.5V GENE)
CL1008
D1004 or MA736 or SFPB-54 EC10QS04
L1007 60u ELL04T033R
QR1001 MRN2111 or UN9115 (AMP)
C1008 8V8.2 ECGC0KA8R2
C1009 330P
R1005 5600 (0.1%)
L1008 4.7u ELC6UB4R7M
C1044 4V33
R1026 1K
R1040 120
R1041 120
QR1005 MRN1110 or UN9216
(PB Ⓗ: ON)
L1005 180u ELL04T035R
R1037 240 (0.5%)
R1006 2700 (0.1%)
C1010 16V3.3
C1011 1
Q1005 2SB1073 (CAM 3.5V GENE)
C1040 10V33
C1046 0.1
(CAP POW. GENE)
Q1007 2SB798
CL1012
C1016 4700P
C1018 16V47
C1021 1
D1015 5805-05CP
R1010 1200
D1001 MA728
R1011 390
R1034 470
CL1004
R1007 33
C1012 1000P
T1001 51u ELL04T042R
D1006 MA132K
C1017 1
L1010 100u
C1019 0.47
CL1003
L1009 10u
C1015 16V47
D1005 5805-05CP
C1014 560P
R1008 10K (0.1%)
R1036 182 (0.5%) VRE0034E26A
R1009 1500 (0.1%)
C1013 12.5V4.7 ECGC1BA4R7
R1035 47
CL1009
Q1004 2SD2210 (CAP-P PULSE AMP)
D1007 MA132K
C1020 1
L1011 100u
C1022 0.1
CL1005
CL1001
CL1006
CL1002
CL1013
T1001-1 STOP 15 Vp-p (1μsec./div.)
TO SYSTEM CTL & SERVO / Page: 3-49
1 PB/Ⓗ
2 V.REF
3 BATT/Ⓗ
4 P.ON/Ⓛ
5 SWNOREG
6 NOREG
7 EJECT.SW
8 C.P.ON/Ⓗ
9 NOREGGND
10 SIG.GND
11 REG5V
12 CAMCLOCK
13 SYSREG5V
14 SDATA
15 CAMTEST
16 CAP.VM
17 CAP.SW
18 TRI.WAVE
19 CAP.GND
20 CAMRESET
28 D REC Ⓗ
TO LUMI & CHRO / Page: 3-54
1 B-YIN
2 B-Y.BAL
3 R-YIN
4 R-Y.BAL
5 CAM.Y
6 V.5V
7 REG5V
8 EVF5V
9 SIG.GND
10 REG9V
11 CCD.GND
TO AUDIO / Page: 3-46
1 REG5V
2 SIG.GND
3 RF5V
(M)
TO PROCESS / Page: 3-29
FP1002
24 Y
23 R-Y.BAL
22 R-Y
21 B-Y.BAL
20 B-Y
19 GND(A)
18 GND(A)
17 CAM3.5V
16 CAM3.5V
15 GND(D)
14 GND(D)
13 CAM-8V
12 CAM18V
11 NOREG
10 NOREG
9 NOREGGND
8 NOREGGND
7 CAM5V
6 D REC Ⓗ
5 CAM9V
4 CAMTEST
3 SDATA
2 CAMRESET
1 CAMCLOCK
TO FP301 (E-20)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

3-15. AUDIO SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
(I) P4001 TO MIC & IR SENSOR/Page:3-83
TO P4301 (A-3)
MIC OUT 1
MIC GND 2
MIC +B 3
IR.IN 4
(J) FP4002 TO A/C HEAD
GND 7
A HEAD (P) 6
A HEAD (R) 5
AE HEAD 4
AE HEAD GND 3
CTL (-) 2
CTL (+) 1
TO SYSTEM CTL & SERVO/Page:3-49
CTL+ 1
CTL- 2
FE.HEAD 3
FE.GND 4
IR.IN 5
TO LUMI.& CHRO./ Page:3-54
V.OUT 1
V.GND 2
(K) B4003 TO AV JACK/ Page:3-75
TO B1501 (B-1)
A.OUT 1
A.GND 2
3
V.GND 4
V.OUT 5
RF GND 6
RF 5V 7
EXT.DATA 8
EXT.CLK 9
10
TO SYSTEM CTL & SERVO/Page3-49
EXT.DATA 6
EXT.CLK 7
8
TO POWER/Page:3-43
SIG.GND 2
RF5V 3
REG5V 1
TL4004
C4050 0.01
C4009 1
R4035 15K
R4012 2200
(REG 5V)
Q4010 XP4501
C4041 0.1
R4053 2.2M
R4025 10K
R4026 10K
Q4004 2SD2216 (BUFFER)
C4020 1000P
C4021 1000P
C4022 2200P
R4024 5600
R4027 330
C4031 5600P
R4028 2200
C4023 1
R4030 560
R4029 22K
TL4003 (A.OUT)
TO SYSTEM CTL & SERVO/Page:3-49
STAB5V 9
DREC/Ⓗ 10
Q4008 2SB970X (D.REC Ⓗ:ON)
R4045 680
R4044 2700
R4049 100K
C4019 5.5V47
C4039 1
R4046 3900
QR4002 MRN1104 or UN9213 (D.REC Ⓗ:ON)
QR4001 UN9210 (D.REC Ⓗ:ON)
CL4004
TO SYSTEM CTL & SERVO/Page:3-49
EE/Ⓗ 11
MUTE/Ⓗ 12
LP Ⓗ 13
A.FADE 14
CL4005
(A.FADE) Q4007 2SD2216
R4051 22K
R4047 1K
R4022 56K
Q4009 2SB1328 (A.FADE)
R4048 68K (A.FADE)
C4043 0.1
R4011 33K
R4031 56K
R4010 12K
C4011 6V22
C4010 4V22
R4009 1M
C4012 4V22
IC4001 BA7757BK
R4056 2200(0.5%)
R4055 2700(0.5%)
C4008 1
R4006 3900
C4038 470P
C4006 0.015
R4005 5600(0.5%)
R4004 330K
R4003 430 (0.5%)
C4005 16V10
C4002 3300P
C4007 5.5V47
C4004 150P
C4003 35V 0.33
C4016 220P
C4017 0.1
C4014 5600P
(BIAS CURR COLD)
(BIAS CURR HOT)
TL4001
TL4002
R4001 10
C4001 1200P
R4002 33K
R4033 1K
R4016 330
R4039 18K
R4038 3900
C4035 1000P
R4040 2200
C4036 3300P
C4015 0.012
R4014 1500
R4043 1K
C4013 1
R4021 22K
R4017 22K
C4018 16V10
Q4001 2SB1220 (BUFFER)
R4008 15K
Q4002 2SD2216
Q4003 2SD2216
R4019 4700
R4020 4700
VR4002 50KB EVM7JSX30B54
BIAS ADJ
C4027 820P
C4028 50V0.015
C4029 50V0.027
T4001 VLQ0494-1T or VLQ0494T
L4002 100µ VLQ0319K101
C4040 6V15
C4024 6V100
R4034 1800
C4026 0.01
R4036 47
C4025 0.022
Q4005 2SD2210 (BIAS OSC)
1
2
3
4
5
6
7
A
B
C
D

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE

Back Page:
POWER Section

SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	4.9	4.9	0	4.9	4.9	4.9	4.9	0	0	0	4.9	0	0	4.9	0	0	0	0	0
REC/PLAY	0	4.9	4.9	0	4.9	4.9	4.9	4.9	0	0	0	4.9	0	0	5.0	4.9	0	4.9	4.9	0
F.F	0	4.9	0	5.0	5.0	4.6	5.0	5.0	0	0	5.0	5.0	0	0	5.0	5.0	0	0	0	0

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0	2.0	0	4.9	0	0	0	0.4	0	0	0	0	0	4.7	4.8	5.0	2.3	2.4	0
REC/PLAY	0	0	2.0	0	4.9	0	0	0	0.4	0	0	0	0	0	4.8	4.7	4.9	2.3	2.3	0
F.F	0	0	2.0	0	5.0	0	0	0	0.4	0	0	0	0	0	4.8	4.8	4.9	2.3	2.3	0

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	5.0	0	0	0	0	0.5	5.0	0	5.0	0	0	4.3	4.6	4.2	4.8	4.8	4.7	2.0	0.2	1.0
REC/PLAY	4.9	0	0	0	0	1.1	4.9	0	4.9	0.3	2.2	4.4	4.6	4.4	4.7	4.4	4.7	0	0.2	1.0
F.F	5.0	0	0	0.4	0	0.6	0.6	4.9	0	0	0	0	4.7	4.3	4.7	4.4	4.7	0	0.2	1.0

REF. NO.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	0	0	0	0	0	4.8	4.9	2.0	4.8	0.4	4.8	0	1.8	2.4	2.5	2.5	0	2.5	0.7
REC/PLAY	0	0	4.9	0	0	0	4.8	4.9	2.0	4.2	1.6	4.8	0	1.8	2.4	2.5	2.5	0	2.5	2.5
F.F	0	0	4.7	0	0	0	4.8	4.9	2.0	4.8	1.6	4.8	0	2.0	2.5	2.5	2.5	0	2.5	2.5

REF. NO.	IC6001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	2.2	2.7	5.0	0	0	0	2.5	2.5	0	2.6	2.6	5.0	0.1	5.0	5.0	2.0	4.8	3.0	2.5	0
REC/PLAY	2.2	2.7	5.0	–	–	0	2.5	2.4	0	2.6	2.5	5.0	2.2	2.4	5.0	2.6	4.8	2.9	2.5	0.2
F.F	–	2.7	5.0	0	0	0	2.5	3.2	0	2.9	3.1	5.0	3.1	3.1	5.0	3.1	4.8	2.9	2.5	1.2

REF. NO.	IC6001																			
MODE	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
STOP	0	0	0	0.1	4.1	0	4.8	4.8	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	0.1	4.9
REC/PLAY	0	0	0.6	3.8	3.8	0.5	4.8	4.7	4.9	4.9	4.9	4.8	4.9	4.9	4.9	4.9	4.9	3.0	3.0	2.8
F.F	0.1	0.7	0.9	3.3	3.3	1.3	3.6	3.6	3.9	3.5	3.9	3.6	4.0	4.0	3.7	3.5	5.0	4.0	3.7	0.3

REF. NO.	IC6001																			
MODE	121	122	123	124	125	126	127	128												
STOP	0	4.8	5.0	5.0	3.7	5.0	5.0	0												
REC/PLAY	0	4.8	5.0	5.0	3.7	4.9	4.9	0.2												
F.F	0.1	3.8	5.0	5.0	3.7	4.9	4.9	2.7												

REF. NO.	IC6002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	0	0	0	0	0.1	0	0.2	0	4.9	0	0.1	0	0.2						
REC/PLAY	0	0	0	0.8	0.4	0.4	0	0.2	0.2	4.9	0	0.5	0	0.2						
F.F	0	0	0	0	0.4	0.3	0	0.2	0.2	4.9	0	0.1	0	0.2						

REF. NO.	IC6003																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	4.7	0	4.7	0	4.8	0.9	2.3	0	0	0	0	0	0	0	0	0	4.8	4.0	0
REC/PLAY	0	4.7	0	4.7	0	4.8	0.9	2.3	2.3	0	0	0	0	0	0.1	0	0	4.8	4.0	0.1
F.F	0	4.7	0	4.7	0	4.8	0	2.3	2.3	0	0	0	0	0	0.1	0	0	4.8	4.0	0

REF. NO.	IC6004																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	2.5	2.5	2.5	4.8	2.5	2.5	2.5	0	3.7	0.3	0	2.5	2.5	2.4						
REC/PLAY	2.5	2.5	2.4	4.8	1.8	2.5	2.4	3.7	3.4	1.6	0	2.5	2.5	2.5						
F.F	2.5	2.5	2.5	4.8	1.1	2.5	2.4	3.7	3.7	0.2	0	2.5	2.5	2.5						

REF. NO.	IC6005										IC6006									
MODE	1	2	3	4	5	6	7	8			1	2	3							
STOP	0	6.8	4.8	0	0	3.8	0	0			0	0	5.1							
REC/PLAY	2.7	6.6	4.8	0	0	3.8	3.2	0			0	4.9	5.0							
F.F	2.2	6.5	4.8	0	0	3.8	2.8	0			0	4.9	5.0							

REF. NO.	IC6007										IC6008									
MODE	1	2	3								1	2	3	4	5					
STOP	0	6.8	5.1								4.6	3.6	0	1.1	4.8					
REC/PLAY	0	6.6	5.1								4.4	3.5	0	1.1	4.8					
F.F	0	6.5	1.5								4.4	3.5	0	1.1	4.8					

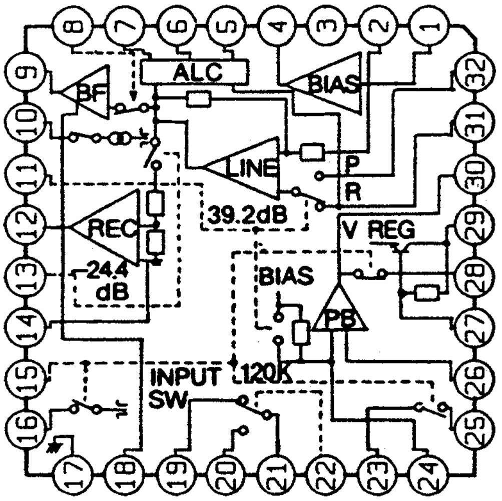
SYSTEM CONTROL & SERVO TRANSISTORs DC VOLTAGE CHART

REF. NO.	Q6001			Q6002			Q6003			Q6004								
MODE	E	C	B	E	C	B	E	C	B	E	C	B						
STOP	0	6.8	0	4.9	4.9	4.2	0	4.8	0	0	4.7	0						
REC/PLAY	0	6.6	0	4.9	4.8	4.1	0	4.8	0	0	4.7	0						
F.F	0.9	6.5	0.8	4.9	4.9	4.2	0	4.6	0	0	4.7	0						

REF. NO.	QR6001			QR6002			QR6003			QR6004						QR6005		
MODE	E	C	B	E	C	B	E	C	B	1	2	3	4	5		E	C	B
STOP	4.8	0	5.0	5.0	0	5.0	4.8	0	0	0.2	0.2	0	0	0		0	4.4	0.1
REC/PLAY	4.8	0	4.9	5.0	4.9	0	4.8	0.1	0	0.2	0.2	0	0	0		0	0.1	0.1
F.F	4.8	0.8	4.2				4.8	4.8	0	0.2	0.2	0	0	0		0	4.4	0.1

REF. NO.	QR6006			QR6007			QR6008			QR6013			QR6015			QR6016		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	5.0	0	0	4.7	0	0	4.5	0	1.1	0	5.0	0	5.0	0	5.0	0
REC/PLAY	0	0.1	4.9	0	0	4.7	0	0	4.4	0	1.1	0	5.0	0	5.0	0	5.0	0
F.F	0	0.1	5.0	0	0	4.7	0	0	4.4	0	1.1	0	5.0	0	5.0	0	5.0	0

IC4001 (BA7757BK)


ALC
BIAS
BF
LINE
P
R
39.2dB
REC
24.4
dB
V REG
BIAS
PB
INPUT
SW
120K
1
2
3
4
5
6
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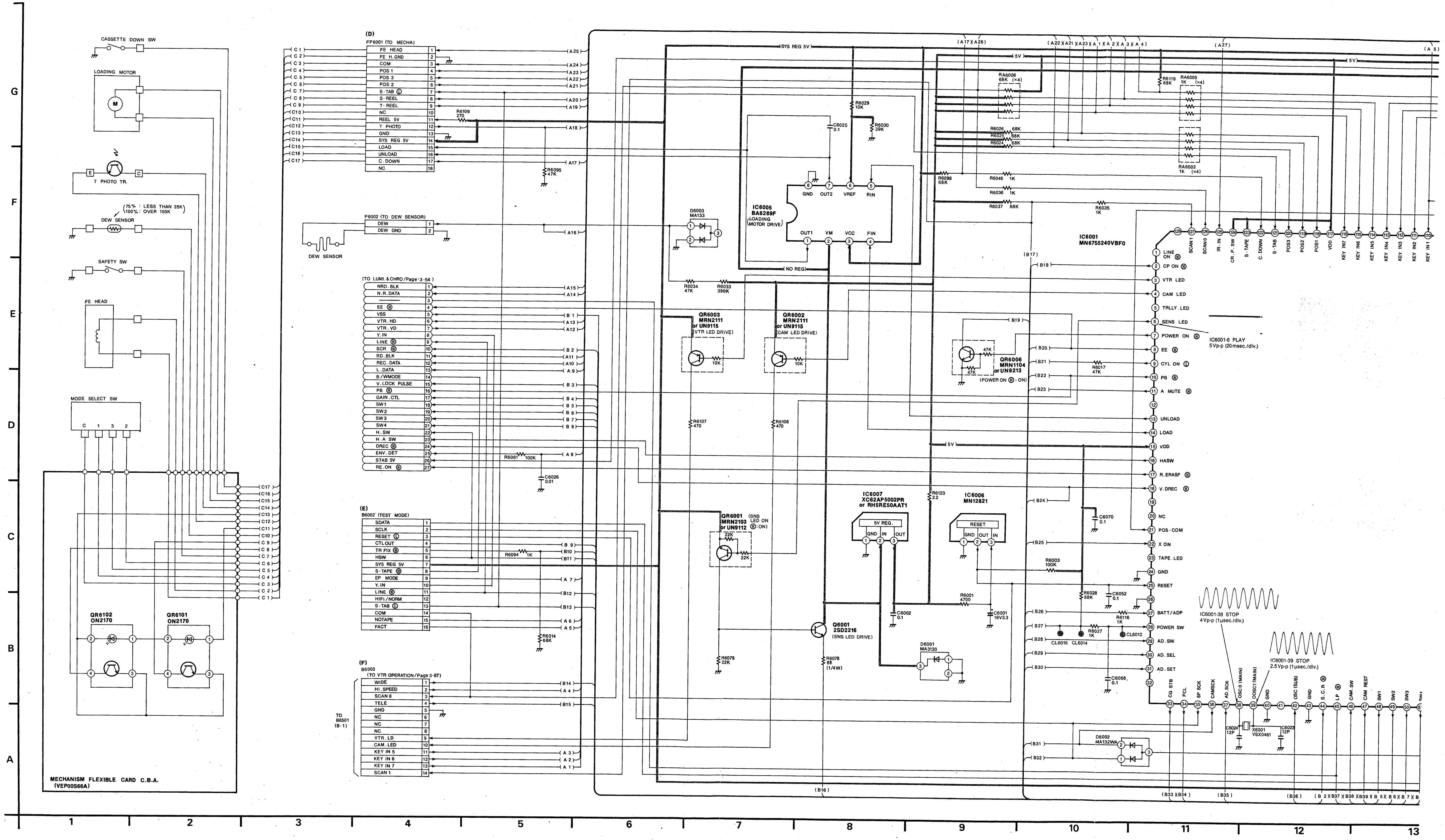
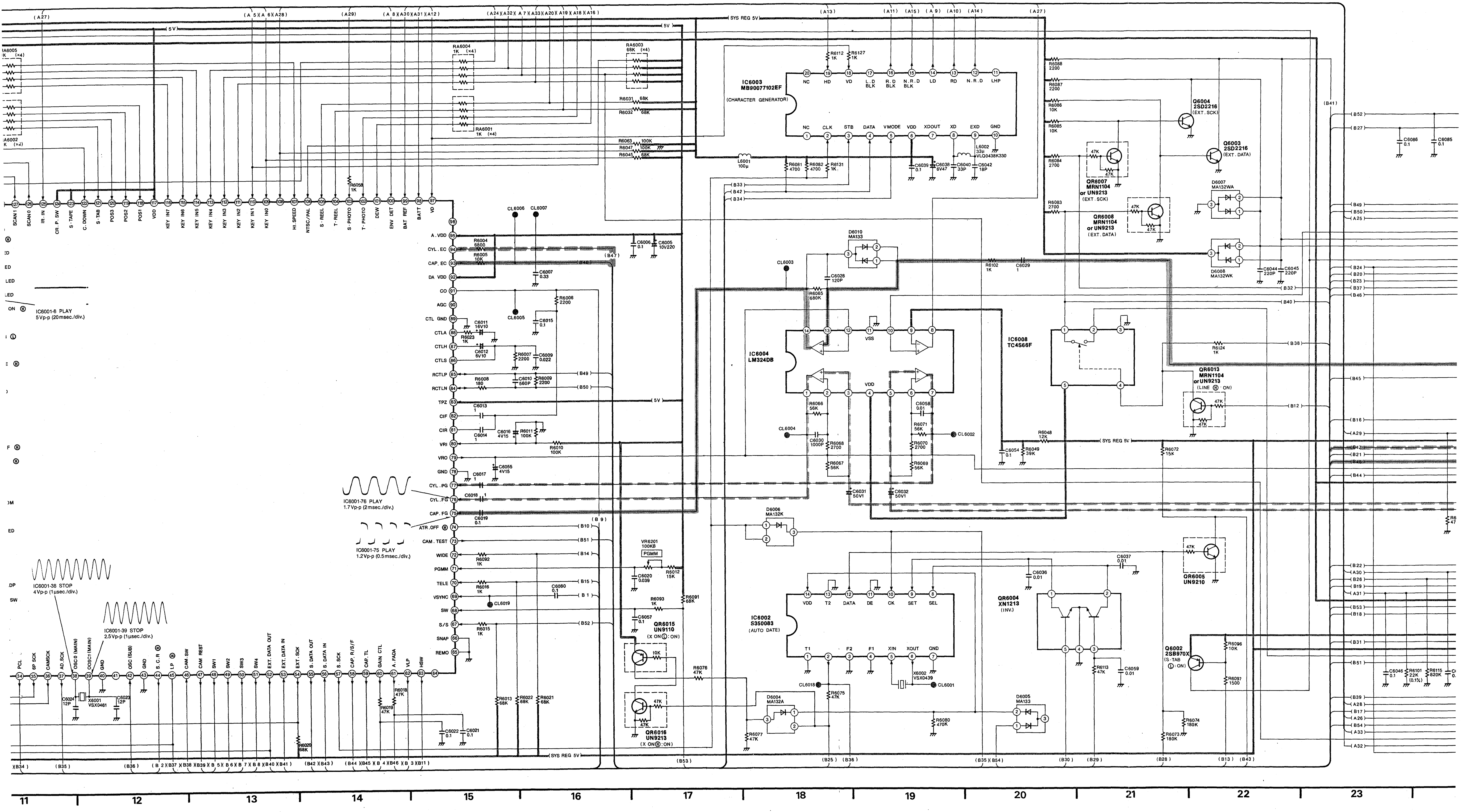
3-16. SYSTEM CONTROL AND SERVO SCHEMATIC DIAGRAM

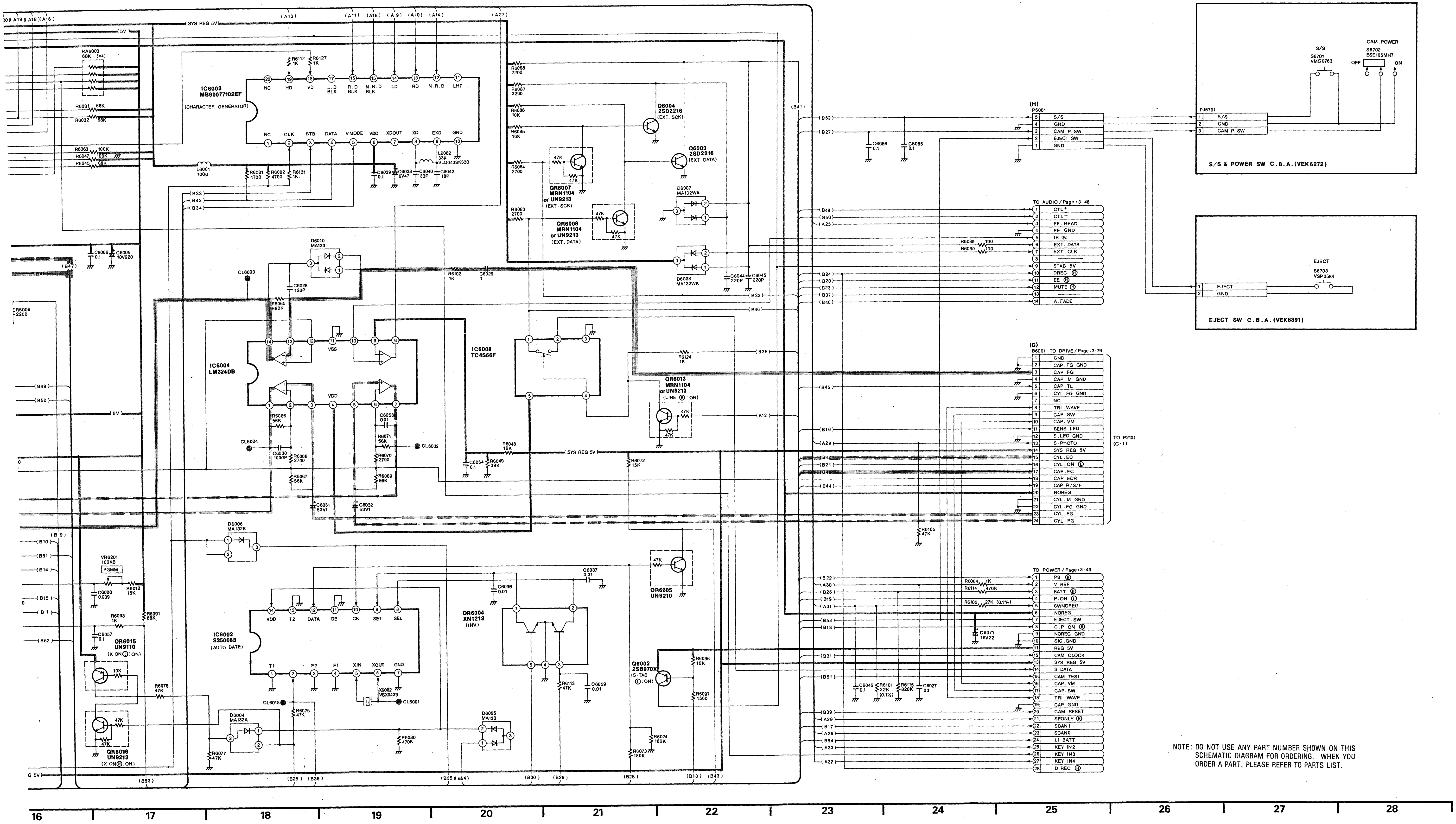

CASSETTE DOWN SW
LOADING MOTOR
T PHOTO TR.
DEW SENSOR
SAFETY SW
FE HEAD
MODE SELECT SW
QR6102 ON2170
QR6101 ON2170
MECHANISM FLEXIBLE CARD C.B.A. (VEP00S66A)
(D) FP6001 (TO MECHA)
FP6002 (TO DEW SENSOR)
(TO LUMI.&CHRO/Page 3-54)
(E) B6002 (TEST MODE)
(F) B6003 (TO VTR OPERATION/Page 3-87)
TO B6501 (B-1)
IC6005 BA6289F (LOADING MOTOR DRIVE)
D6003 MA133
QR6003 MRN2111 or UN9115 (VTR LED DRIVE)
QR6002 MRN2111 or UN9115 (CAM LED DRIVE)
QR6001 MRN2103 or UN9112 (SNS LED ON H:ON)
Q6001 2SD2216 (SNS LED DRIVE)
IC6007 XC62AP5002PR or RH5RE50AAT1
IC6006 MN12821
D6001 MA3130
QR6006 MRN1104 or UN9213 (POWER ON H:ON)
IC6001 MN6755240VBF0
IC6001-6 PLAY 5Vp-p (20msec./div.)
IC6001-38 STOP 4Vp-p (1μsec./div.)
IC6001-39 STOP 2.5Vp-p (1μsec./div.)
D6002 MA132WA
X6001 VSX0461
(SYS REG 5V)
(NO REG)
(5V)
1
2
3
4
5
6
7
8
9
10
11
12
13
G
F
E
D
C
B
A



IC6003
MB90077102EF
(CHARACTER GENERATOR)
IC6004
LM324DB
IC6008
TC4S66F
IC6002
S350083
(AUTO DATE)
Q6004
2SD2216
(EXT. SCK)
Q6003
2SD2216
(EXT. DATA)
QR6007
MRN1104
or UN9213
(EXT. SCK)
QR6008
MRN1104
or UN9213
(EXT. DATA)
QR6013
MRN1104
or UN9213
QR6005
UN9210
QR6004
XN1213
(INV.)
Q6002
2SB970X
QR6015
UN9110
QR6016
UN9213
D6010
MA133
D6007
MA132WA
D6008
MA132WK
D6006
MA132K
D6004
MA132A
D6005
MA133
X6002
VSX0439
X6001
VSX0461
VR6201
100KB
PGMM
RA6004
RA6003
RA6001
IC6001-6 PLAY
5Vp-p (20msec./div.)
IC6001-76 PLAY
1.7Vp-p (2msec./div.)
IC6001-75 PLAY
1.2Vp-p (0.5msec./div.)
IC6001-38 STOP
4Vp-p (1μsec./div.)
IC6001-39 STOP
2.5Vp-p (1μsec./div.)
SYS REG 5V
5V
11
12
13
14
15
16
17
18
19
20
21
22
23

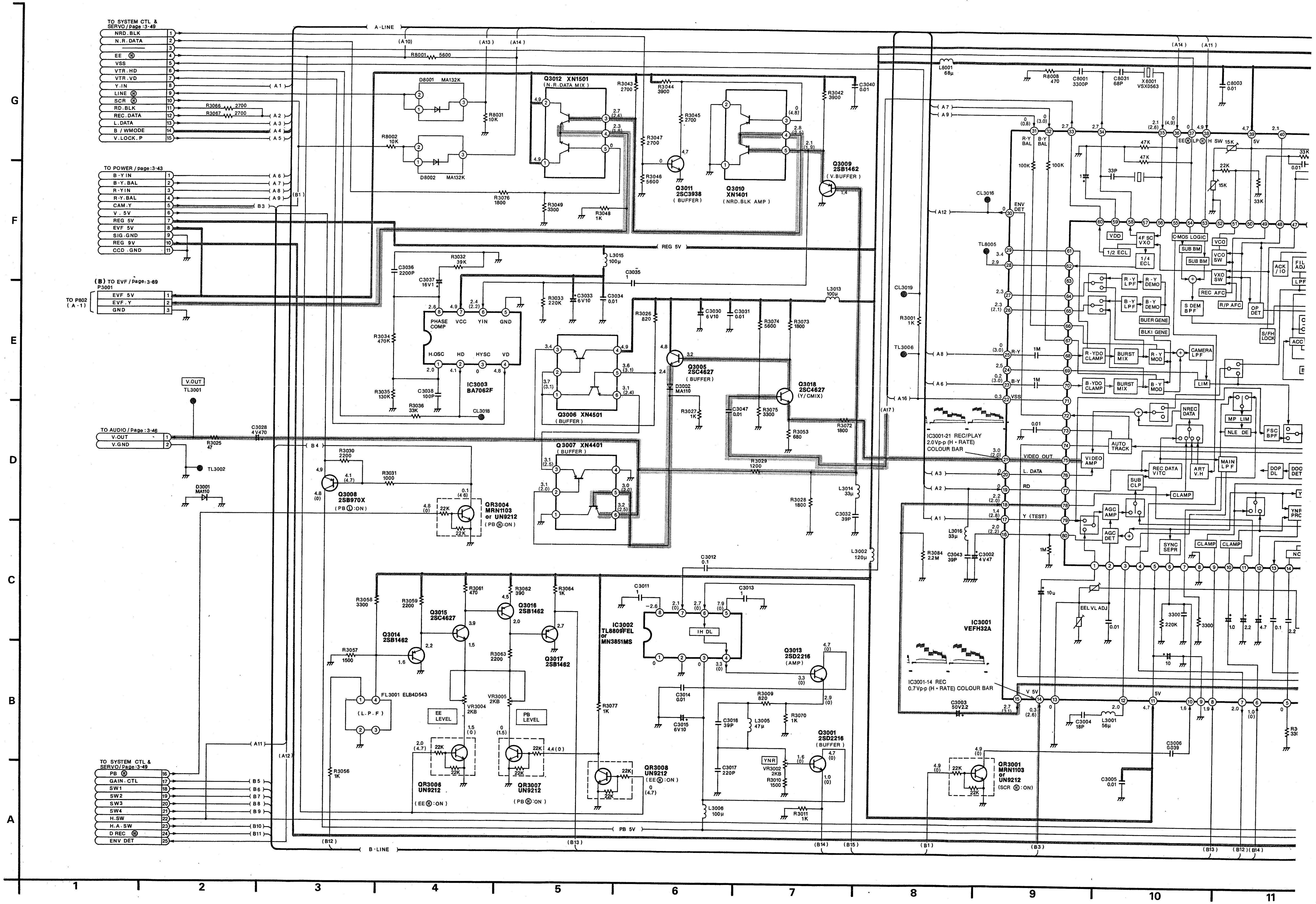
CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER

CAPSTAN SERVO SPEED LOOP   CAPSTAN SERVO PHASE LOOP   CYLINDER SERVO SPEED LOOP   CYLINDER SERVO PHASE LOOP


IC6003
MB90077102EF
(CHARACTER GENERATOR)
NC HD VD L.D BLK R.D BLK N.R.D BLK LD RD N.R.D LHP
NC CLK STB DATA VMODE VDD XDOUT XD EXD GND
SYS REG 5V
RA6003 68K (×4)
Q6004 2SD2216 (EXT. SCK)
Q6003 2SD2216 (EXT. DATA)
QR6007 MRN1104 or UN9213 (EXT. SCK)
QR6008 MRN1104 or UN9213 (EXT. DATA)
D6007 MA132WA
D6008 MA132WK
D6010 MA133
IC6004 LM324DB
IC6008 TC4S66F
QR6013 MRN1104 or UN9213 (LINE Ⓡ : ON)
D6006 MA132K
VR6201 100KB PGMM
QR6015 UN9110 (X ON Ⓛ : ON)
QR6016 UN9213 (X ON Ⓡ : ON)
IC6002 S350083 (AUTO DATE)
VDD T2 DATA DE CK SET SEL
T1 F2 F1 XIN XOUT GND
X6002 VSX0439
D6004 MA132A
D6005 MA133
QR6004 XN1213 (INV.)
QR6005 UN9210
Q6002 2SB970X (S-TAB Ⓛ : ON)
(H) P6001
5 S/S
4 GND
3 CAM. P. SW
2 EJECT SW
1 GND
PJ6701
1 S/S
2 GND
3 CAM. P. SW
S/S S6701 VMG0763
CAM. POWER S6702 ESE105MH7 OFF ON
S/S & POWER SW C.B.A. (VEK6272)
TO AUDIO / Page : 3-46
1 CTL+
2 CTL−
3 FE. HEAD
4 FE. GND
5 IR. IN
6 EXT. DATA
7 EXT. CLK
8
9 STAB 5V
10 DREC Ⓡ
11 EE Ⓗ
12 MUTE Ⓗ
13
14 A. FADE
EJECT S6703 VSP0584
1 EJECT
2 GND
EJECT SW C.B.A. (VEK6391)
(G) B6001 TO DRIVE / Page : 3-79
1 GND
2 CAP. FG GND
3 CAP. FG
4 CAP. M GND
5 CAP. TL
6 CYL. FG GND
7 NC
8 TRI. WAVE
9 CAP. SW
10 CAP. VM
11 SENS LED
12 S. LED GND
13 S-PHOTO
14 SYS. REG 5V
15 CYL. EC
16 CYL. ON Ⓛ
17 CAP. EC
18 CAP. ECR
19 CAP. R/S/F
20 NOREG
21 CYL. M GND
22 CYL. FG GND
23 CYL. FG
24 CYL. PG
TO P2101 (C-1)
TO POWER / Page : 3-43
1 PB Ⓗ
2 V. REF
3 BATT Ⓗ
4 P. ON Ⓛ
5 SWNOREG
6 NOREG
7 EJECT. SW
8 C. P. ON Ⓗ
9 NOREG GND
10 SIG. GND
11 REG 5V
12 CAM CLOCK
13 SYS REG 5V
14 S. DATA
15 CAM TEST
16 CAP. VM
17 CAP. SW
18 TRI. WAVE
19 CAP. GND
20 CAM RESET
21 SPONLY Ⓗ
22 SCAN1
23 SCAN0
24 LI. BATT
25 KEY IN2
26 KEY IN3
27 KEY IN4
28 D. REC Ⓗ
16 17 18 19 20 21 22 23 24 25 26 27 28

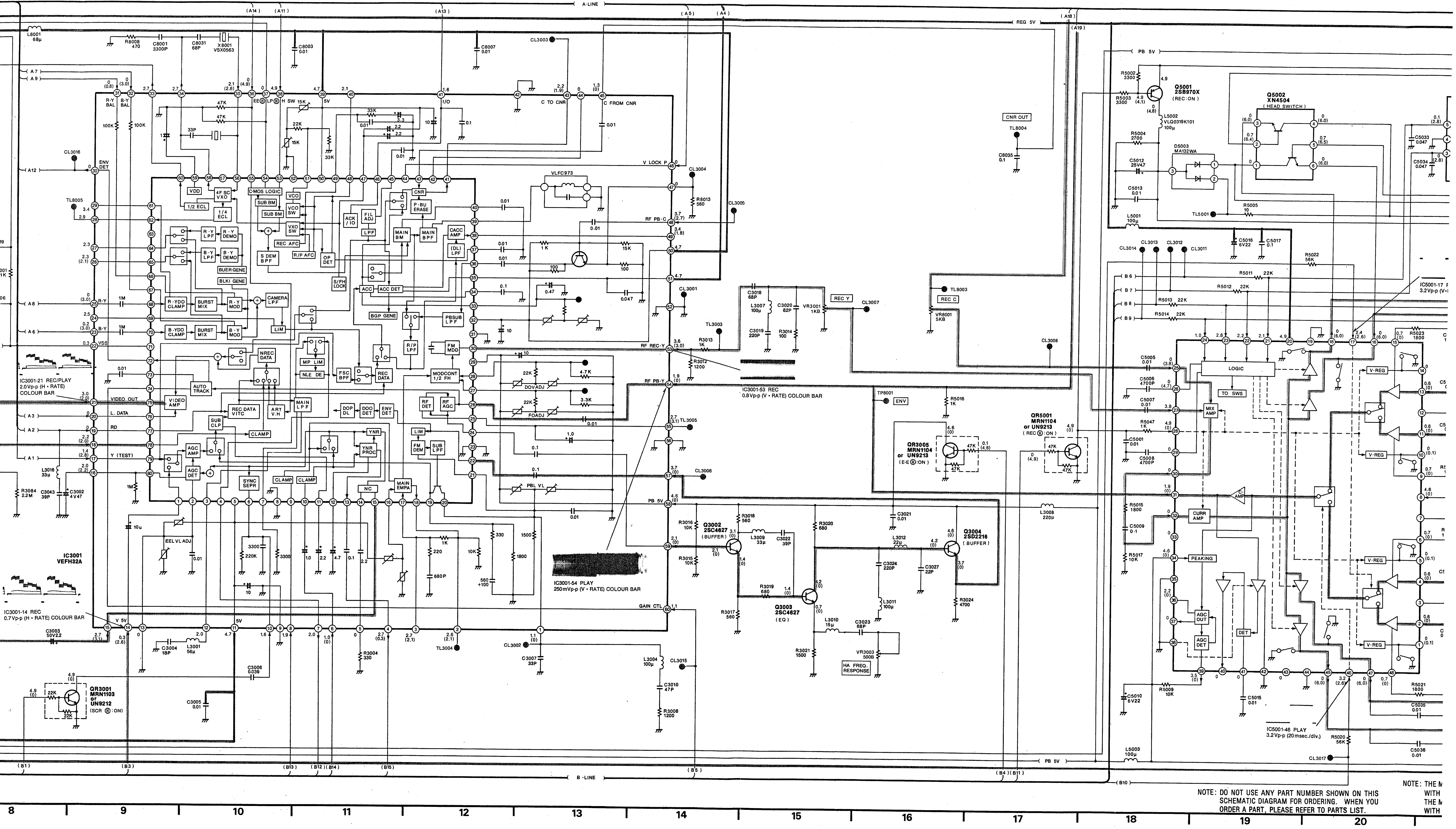
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-17. LUMINANCE/CHROMINANCE AND HEAD AMP SCHEMATIC DIAGRAM


TO SYSTEM CTL & SERVO / Page : 3-49
1 NRD.BLK
2 N.R.DATA
3
4 EE Ⓗ
5 VSS
6 VTR.HD
7 VTR.VD
8 Y.IN
9 LINE Ⓗ
10 SCR Ⓗ
11 RD.BLK
12 REC.DATA
13 L.DATA
14 B / WMODE
15 V.LOCK.P
R3066 2700
R3067 2700
A1
A2
A3
A4
A5
TO POWER / page : 3-43
1 B-Y IN
2 B-Y.BAL
3 R-YIN
4 R-Y.BAL
5 CAM.Y
6 V . 5V
7 REG 5V
8 EVF 5V
9 SIG.GND
10 REG 9V
11 CCD.GND
A6
A7
A8
A9
B1
B3
(B) TO EVF / Page : 3-69
P3001
TO P802 (A-1)
1 EVF 5V
2 EVF.Y
3 GND
V.OUT
TL3001
TO AUDIO / Page : 3-46
1 V.OUT
2 V.GND
R3025 47
C3028 4V470
TL3002
D3001 MA110
TO SYSTEM CTL & SERVO / Page : 3-49
16 PB Ⓗ
17 GAIN.CTL
18 SW1
19 SW2
20 SW3
21 SW4
22 H.SW
23 H.A.SW
24 D REC Ⓗ
25 ENV DET
B5
B6
B7
B8
B9
B10
B11
A11
A12
B12
A-LINE
B-LINE
REG 5V
PB 5V
A10
A13
A14
R8001 5600
D8001 MA132K
D8002 MA132K
R8002 10K
R8031 10K
Q3012 XN1501 (N.R.DATA MIX)
R3043 2700
R3044 3900
R3045 2700
R3047 2700
R3046 5600
Q3011 2SC3938 (BUFFER)
Q3010 XN1401 (NRD.BLK AMP)
R3042 3900
C3040 0.01
Q3009 2SB1462 (V.BUFFER)
R3076 1800
R3049 3300
R3048 1K
L3015 100μ
C3035 1
R3032 39K
C3036 2200P
C3037 16V1
R3033 220K
C3033 6V10
C3034 0.01
PHASE COMP
VCC
YIN
GND
H.OSC
HD
HYSC
VD
IC3003 BA7062F
R3034 470K
R3035 130K
C3038 100P
R3036 33K
CL3018
Q3006 XN4501 (BUFFER)
Q3007 XN4401 (BUFFER)
R3026 820
C3030 6V10
C3031 0.01
R3074 5600
R3073 1800
L3013 100μ
Q3005 2SC4627 (BUFFER)
D3002 MA110
R3027 1K
Q3018 2SC4627 (Y/CMIX)
C3047 0.01
R3075 3300
R3053 680
R3072 1800
R3029 1200
R3028 1800
L3014 33μ
C3032 39P
L3002 120μ
R3030 2200
R3031 1000
Q3008 2SB970X (PB Ⓗ:ON)
QR3004 MRN1103 or UN9212 (PB Ⓗ:ON)
R3058 3300
R3059 2200
R3061 470
R3062 390
R3064 1K
Q3015 2SC4627
Q3016 2SB1462
Q3014 2SB1462
Q3017 2SB1462
R3057 1500
R3063 2200
FL3001 ELB4D543
(L.P.F)
EE LEVEL
PB LEVEL
VR3004 2KB
VR3005 2KB
QR3006 UN9212 (EE Ⓗ:ON)
QR3007 UN9212 (PB Ⓗ:ON)
R3056 1K
C3011 1
C3012 0.1
C3013 1
IC3002 TL8809FEL or MN3851MS
IH DL
R3077 1K
QR3008 UN9212 (EE Ⓗ:ON)
C3014 0.01
C3015 6V10
C3016 39P
L3005 47μ
R3009 820
R3070 1K
Q3013 2SD2216 (AMP)
Q3001 2SD2216 (BUFFER)
C3017 220P
YNR
VR3002 2KB
R3010 1500
R3011 1K
L3006 100μ
(A17)
A15
A16
L8001 68μ
R8008 470
C8001 3300P
C8031 68P
X8001 VSX0563
C8003 0.01
CL3016
TL8005
CL3019
R3001 1K
TL3006
ENV DET
R-Y BAL
B-Y BAL
VSS
VIDEO OUT
L. DATA
RD
Y (TEST)
V 5V
IC3001-21 REC/PLAY 2.0Vp-p (H • RATE) COLOUR BAR
IC3001-14 REC 0.7Vp-p (H • RATE) COLOUR BAR
IC3001 VEFH32A
EEL VL ADJ
VDD
1/2 ECL
4F SC VXO
1/4 ECL
C-MOS LOGIC
SUB BM
VCO
VXO SW
REC AFC
R/P AFC
S DEM BPF
OP DET
BUER GENE
BLKI GENE
R-Y LPF
R-Y DEMO
B-Y LPF
B-Y DEMO
R-YDD CLAMP
B-YDD CLAMP
BURST MIX
R-Y MOD
B-Y MOD
CAMERA LPF
LIM
NREC DATA
MP LIM
NLE DE
FSC BPF
AUTO TRACK
VIDEO AMP
REC DATA VITC
ART V.H
MAIN LPF
DOP DL
SUB CLP
CLAMP
AGC AMP
AGC DET
SYNC SEPR
L3016 33μ
C3043 39P
C3002 4V47
R3084 2.2M
C3003 50V2.2
C3004 18P
L3001 56μ
C3006 0.039
C3005 0.01
QR3001 MRN1103 or UN9212 (SCR Ⓗ:ON)
B13
B14
B15
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G

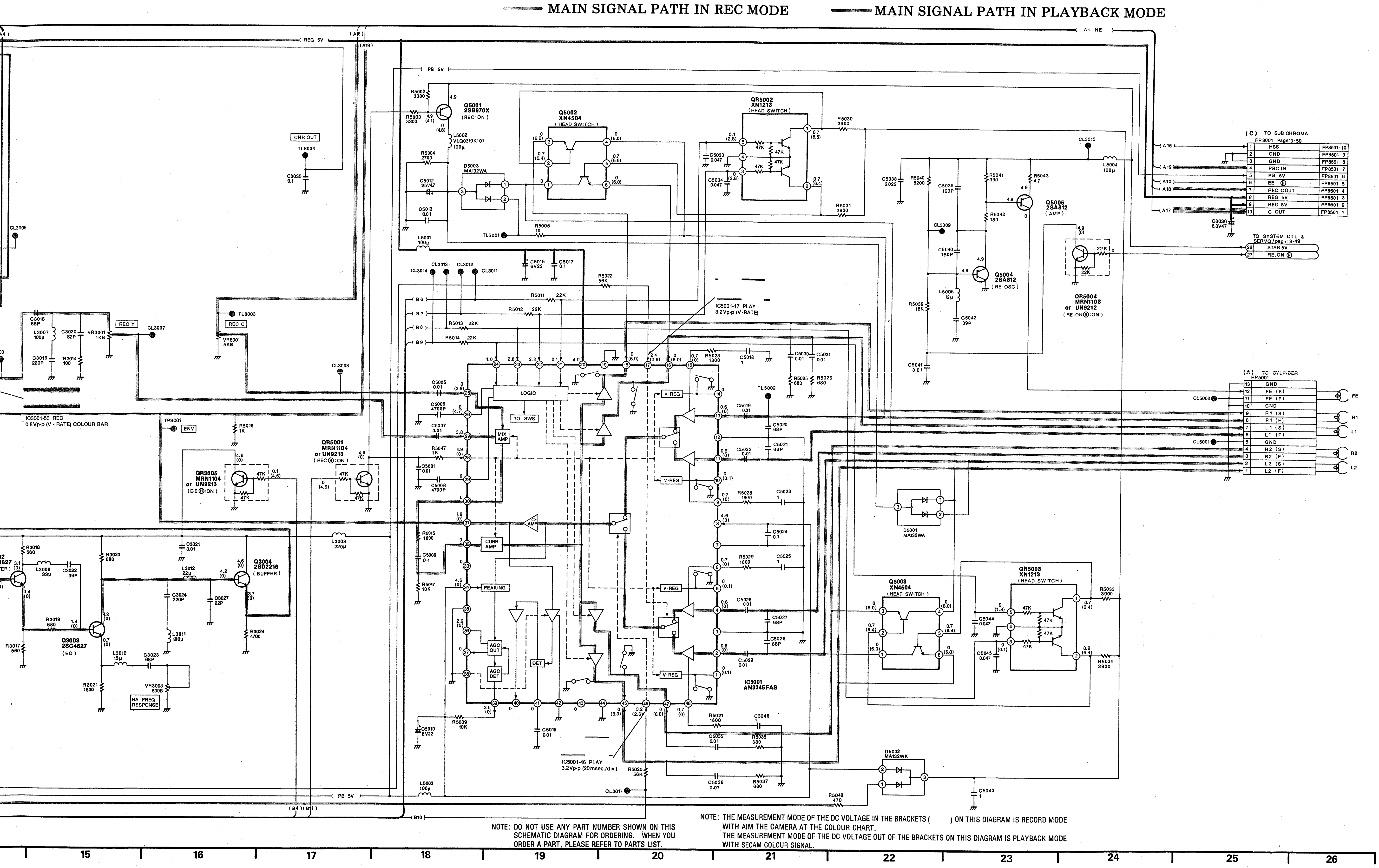
Back Page:
SYSTEM CTL & SERVO Section

MAIN SIGNAL PATH IN REC


A-LINE
B-LINE
REG 5V
PB 5V
IC3001
VEFH32A
IC3001-21 REC/PLAY 2.0Vp-p (H • RATE) COLOUR BAR
IC3001-14 REC 0.7Vp-p (H • RATE) COLOUR BAR
IC3001-53 REC 0.8Vp-p (V • RATE) COLOUR BAR
IC3001-54 PLAY 250mVp-p (V • RATE) COLOUR BAR
IC5001-17 3.2Vp-p
IC5001-46 PLAY 3.2Vp-p (20msec./div.)
Q3002 2SC4627 (BUFFER)
Q3003 2SC4627 (EQ)
Q3004 2SD2216 (BUFFER)
Q5001 2SB970X (REC:ON)
Q5002 XN4504 (HEAD SWITCH)
QR3001 MRN1103 or UN9212 (SCR Ⓗ:ON)
QR3005 MRN1104 or UN9213 (E-EⒽ:ON)
QR5001 MRN1104 or UN9213 (RECⒽ:ON)
VR3001 1KB
VR3003 500B
VR8001 5KB
D5003 MA132WA
L5002 VLQ0319K101 100μ
X8001 VSX0563
VLFC973
CNR OUT
REC Y
REC C
ENV
HA FREQ. RESPONSE
LOGIC
TO SWS
MIX AMP
CURR AMP
PEAKING
AGC OUT
AGC DET
DET
V-REG
C FROM CNR
C TO CNR
V LOCK P
RF PB-C
RF REC-Y
RF PB-Y
PB 5V
GAIN CTL
VIDEO OUT
L. DATA
RD
Y (TEST)
EEL VL ADJ
DOVADJ
FOADJ
PBL VL
8
9
10
11
12
13
14
15
16
17
18
19
20

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

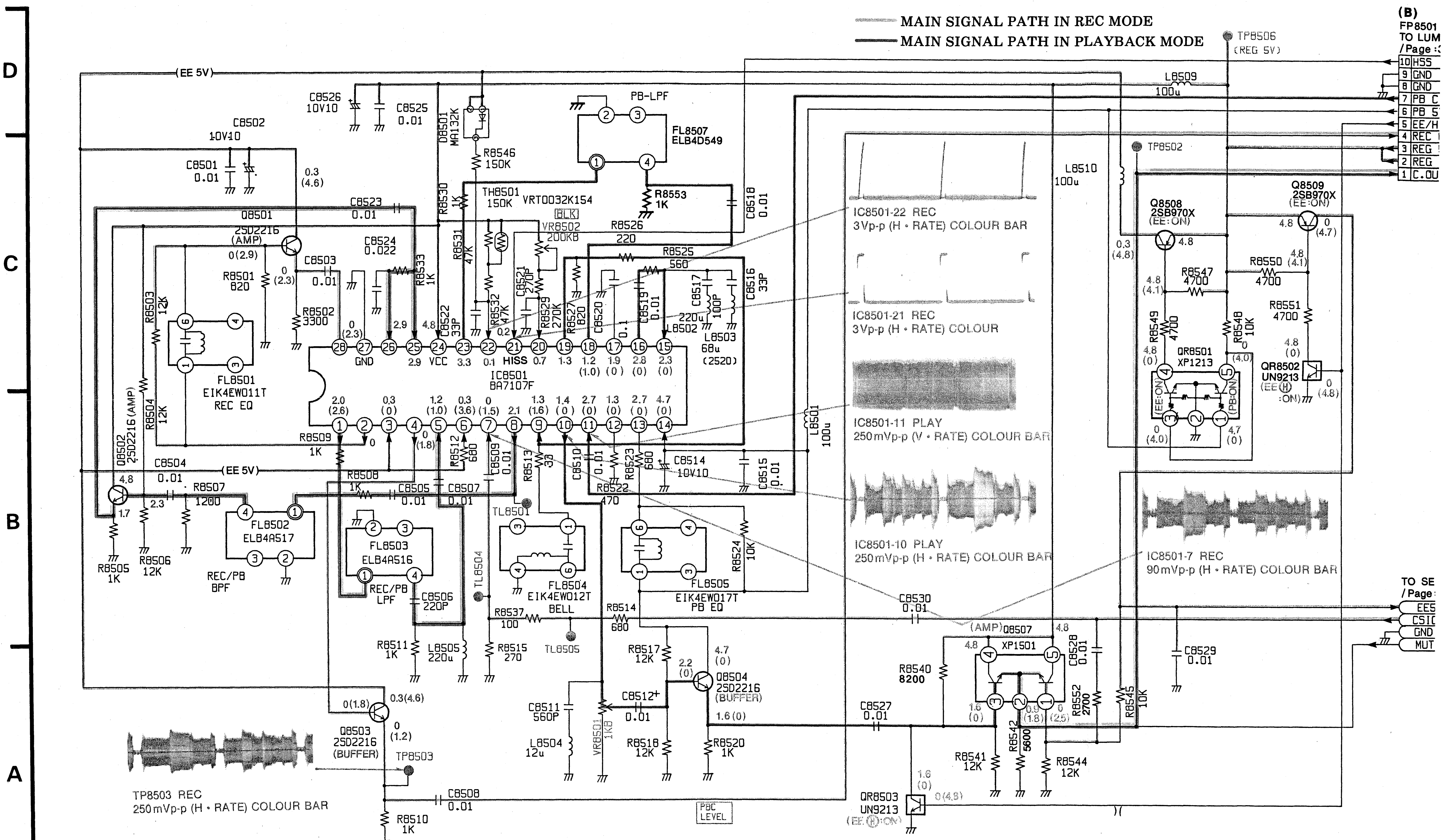
NOTE: THE
WITH
THE
WITH


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
A-LINE
REG 5V
PB 5V
Q5001 2SB970X (REC:ON)
L5002 VLQ0319K101 100μ
D5003 MA132WA
Q5002 XN4504 (HEAD SWITCH)
QR5002 XN1213 (HEAD SWITCH)
Q5005 2SA812 (AMP)
Q5004 2SA812 (RE OSC)
QR5004 MRN1103 or UN9212 (RE.ON Ⓡ:ON)
(C) TO SUB CHROMA FP8001 Page:3-59
HSS
GND
PBC IN
PB 5V
EE Ⓡ
REC C OUT
REG 5V
C OUT
TO SYSTEM CTL & SERVO / page:3-49
STAB 5V
RE.ON Ⓡ
(A) TO CYLINDER FP5001
FE (S)
FE (F)
R1 (S)
R1 (F)
L1 (S)
L1 (F)
R2 (S)
R2 (F)
L2 (S)
L2 (F)
FE
R1
L1
R2
L2
CNR OUT
REC Y
REC C
IC3001-53 REC 0.8Vp-p (V • RATE) COLOUR BAR
ENV
QR3005 MRN1104 or UN9213 (E-E Ⓡ:ON)
QR5001 MRN1104 or UN9213 (REC Ⓡ:ON)
IC5001-17 PLAY 3.2Vp-p (V • RATE)
LOGIC
TO SWS
MIX AMP
C-AMP
CURR AMP
PEAKING
AGC OUT
AGC DET
DET
V-REG
IC5001 AN3345FAS
IC5001-46 PLAY 3.2Vp-p (20msec./div.)
D5001 MA132WA
Q5003 XN4504 (HEAD SWITCH)
QR5003 XN1213 (HEAD SWITCH)
D5002 MA132WK
Q3003 2SC4627 (EQ)
Q3004 2SD2216 (BUFFER)
HA FREQ. RESPONSE
15
16
17
18
19
20
21
22
23
24
25
26

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH SECAM COLOUR SIGNAL.

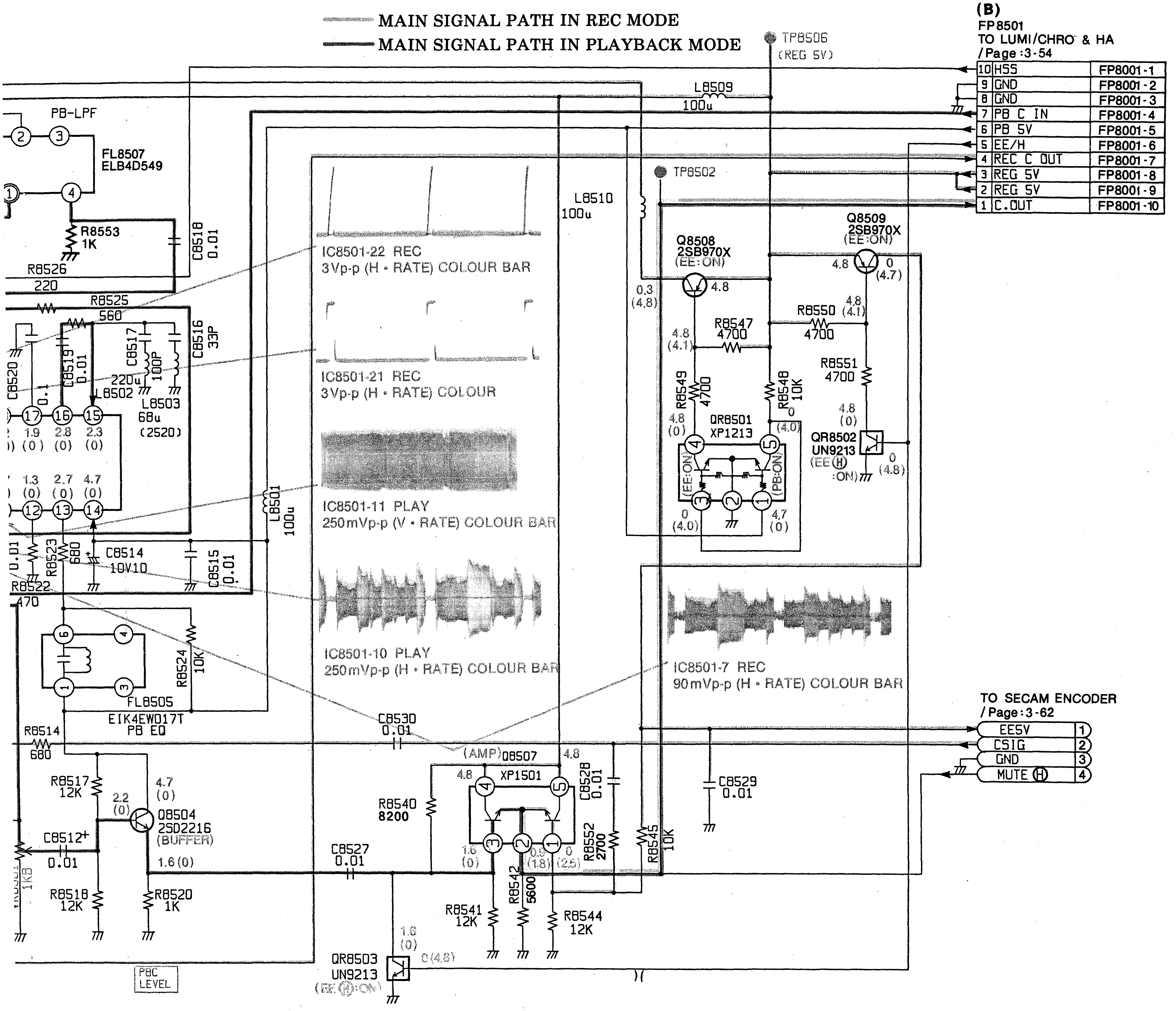
3-18. SUB CHROMA SCHEMATIC DIAGRAM



MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
D
C
B
A
(EE 5V)
C8526 10V10
C8525 0.01
C8502 10V10
C8501 0.01
0.3 (4.6)
Q8501 2SD2216 (AMP)
0(2.9)
R8501 820
C8523 0.01
C8524 0.022
C8503 0.01
R8502 3300
R8503 12K
R8504 12K
Q8502 2SD2216 (AMP)
FL8501 EIK4EW011T REC EQ
D8501 MA132K
R8546 150K
R8530 1K
R8531 47K
R8533 1K
TH8501 150K VRT0032K154
BLK
VR8502 200KB
C8522 33P
C8521 270P
R8532 47K
R8529 270K
R8527 820
C8520
C8519 0.01
C8517 100P
C8516 33P
C8518 0.01
L8502 220μ
L8503 68μ (2520)
PB-LPF
FL8507 ELB4D549
R8553 1K
R8526 220
R8525 560
IC8501 BA7107F
GND
VCC
HISS
R8509 1K
R8508 1K
R8512 680
C8509 0.01
R8513 33
C8510 0.01
R8523 680
C8514 10V10
C8515 0.01
R8522 470
C8504 0.01
R8507 1200
FL8502 ELB4A517 REC/PB BPF
FL8503 ELB4A516 REC/PB LPF
C8505 0.01
C8507 0.01
C8506 220P
R8505 1K
R8506 12K
TL8501
TL8504
FL8504 EIK4EW012T BELL
FL8505 EIK4EW017T PB EQ
R8524 10K
R8537 100
R8514 680
TL8505
R8511 1K
L8505 220μ
R8515 270
R8517 12K
Q8504 2SD2216 (BUFFER)
C8511 560P
C8512 0.01
VR8501 1KB
L8504 12μ
R8518 12K
R8520 1K
PBC LEVEL
Q8503 2SD2216 (BUFFER)
TP8503
C8508 0.01
R8510 1K
TP8503 REC 250mVp-p (H • RATE) COLOUR BAR
L8501 100μ
IC8501-22 REC 3Vp-p (H • RATE) COLOUR BAR
IC8501-21 REC 3Vp-p (H • RATE) COLOUR
IC8501-11 PLAY 250mVp-p (V • RATE) COLOUR BAR
IC8501-10 PLAY 250mVp-p (H • RATE) COLOUR BAR
IC8501-7 REC 90mVp-p (H • RATE) COLOUR BAR
C8530 0.01
(AMP) Q8507 XP1501
R8540 8200
C8528 0.01
R8552 2700
R8545 10K
C8527 0.01
R8541 12K
R8542 5600
R8544 12K
C8529 0.01
QR8503 UN9213 (EE:Ⓗ:ON)
TP8506 (REG 5V)
L8509 100μ
L8510 100μ
TP8502
Q8508 2SB970X (EE:ON)
Q8509 2SB970X (EE:ON)
R8547 4700
R8550 4700
R8549 4700
R8548 10K
R8551 4700
QR8501 XP1213
(EE:ON)
(PB:ON)
QR8502 UN9213 (EE:Ⓗ:ON)
(B) FP8501 TO LUM /Page :
10 HSS
9 GND
8 GND
7 PB C
6 PB S
5 EE/H
4 REC
3 REG
2 REG
1 C.OU
TO SE /Page
EES
CSIC
GND
MUT
1
2
3
4
5

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

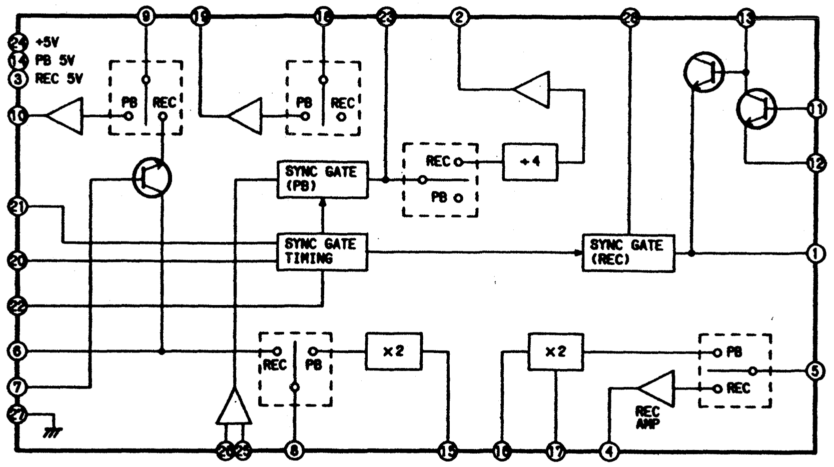
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHAR
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH SECAM COLOUR SIGNAL.


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
TP8506 (REG 5V)
(B)
FP8501
TO LUMI/CHRO & HA
/Page:3-54
10 HSS FP8001-1
9 GND FP8001-2
8 GND FP8001-3
7 PB C IN FP8001-4
6 PB 5V FP8001-5
5 EE/H FP8001-6
4 REC C OUT FP8001-7
3 REG 5V FP8001-8
2 REG 5V FP8001-9
1 C.OUT FP8001-10
PB-LPF
FL8507
ELB4D549
R8553 1K
R8526 220
C8518 0.01
R8525 560
C8516 33P
C8517 100P
C8519 0.01
C8520 0.1
220u L8502
L8503 68u (2520)
L8509 100u
L8510 100u
TP8502
L8501 100u
IC8501-22 REC
3Vp-p (H • RATE) COLOUR BAR
IC8501-21 REC
3Vp-p (H • RATE) COLOUR
IC8501-11 PLAY
250mVp-p (V • RATE) COLOUR BAR
IC8501-10 PLAY
250mVp-p (H • RATE) COLOUR BAR
IC8501-7 REC
90mVp-p (H • RATE) COLOUR BAR
Q8508 2SB970X (EE:ON)
Q8509 2SB970X (EE:ON)
R8547 4700
R8550 4700
R8549 4700
R8548 10K
R8551 4700
QR8501 XP1213
QR8502 UN9213 (EE Ⓗ :ON)
C8514 10V10
C8515 0.01
R8523 680
R8522 470
FL8505
EIK4EW017T
PB EQ
R8524 10K
R8514 680
C8530 0.01
(AMP) Q8507 XP1501
C8528 0.01
C8529 0.01
R8540 8200
R8517 12K
Q8504 2SD2216 (BUFFER)
C8512 0.01
R8518 12K
R8520 1K
C8527 0.01
R8552 2700
R8545 10K
R8541 12K
R8542 5600
R8544 12K
QR8503 UN9213 (EE Ⓗ :ON)
PBC LEVEL
TO SECAM ENCODER
/Page:3-62
EE5V 1
CSIG 2
GND 3
MUTE Ⓗ 4

T MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
T MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH SECAM COLOUR SIGNAL.

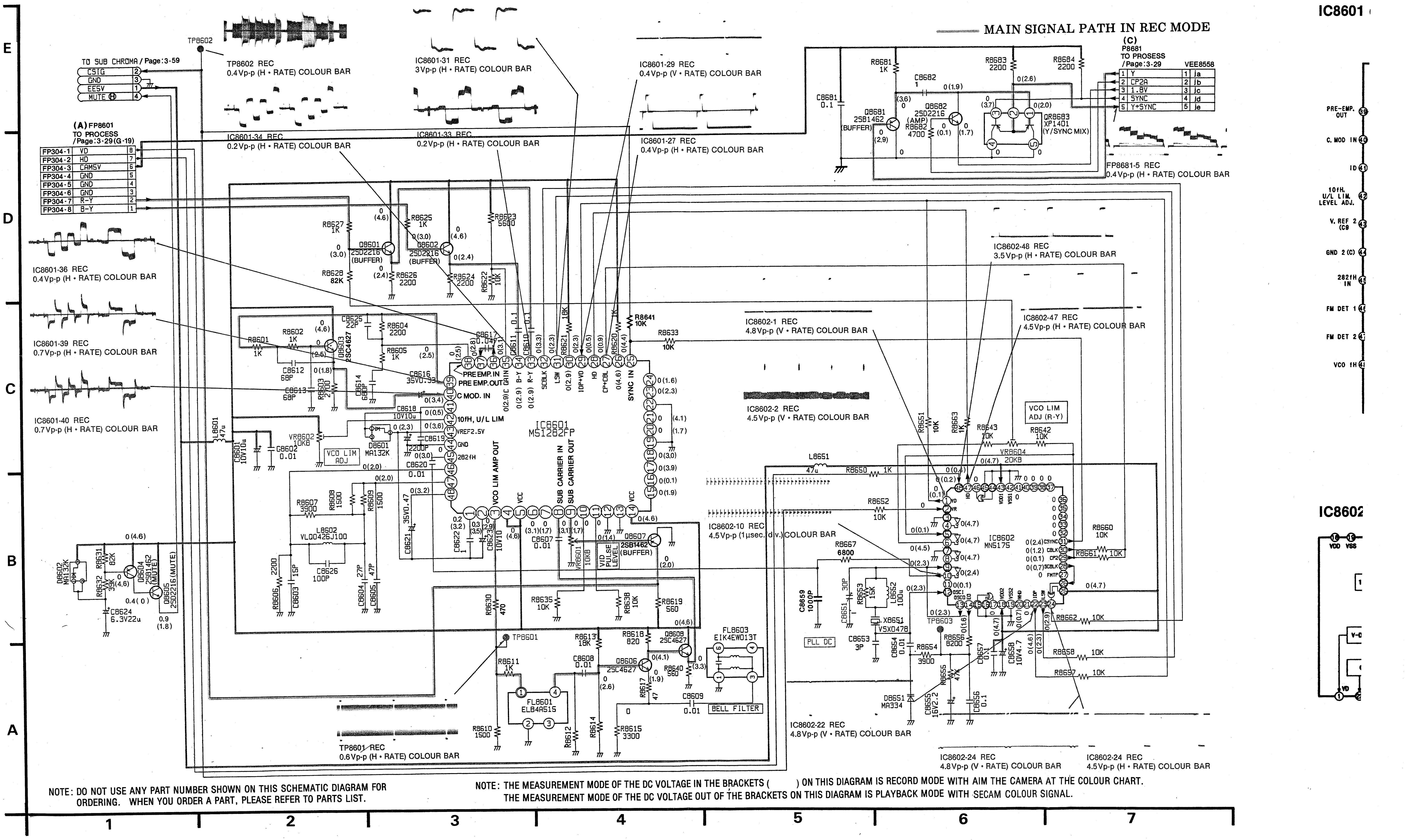
3 4 5 6

IC8501 (BA7107F)


+5V
PB 5V
REC 5V
PB
REC
SYNC GATE (PB)
SYNC GATE TIMING
SYNC GATE (REC)
÷4
×2
×2
REC AMP

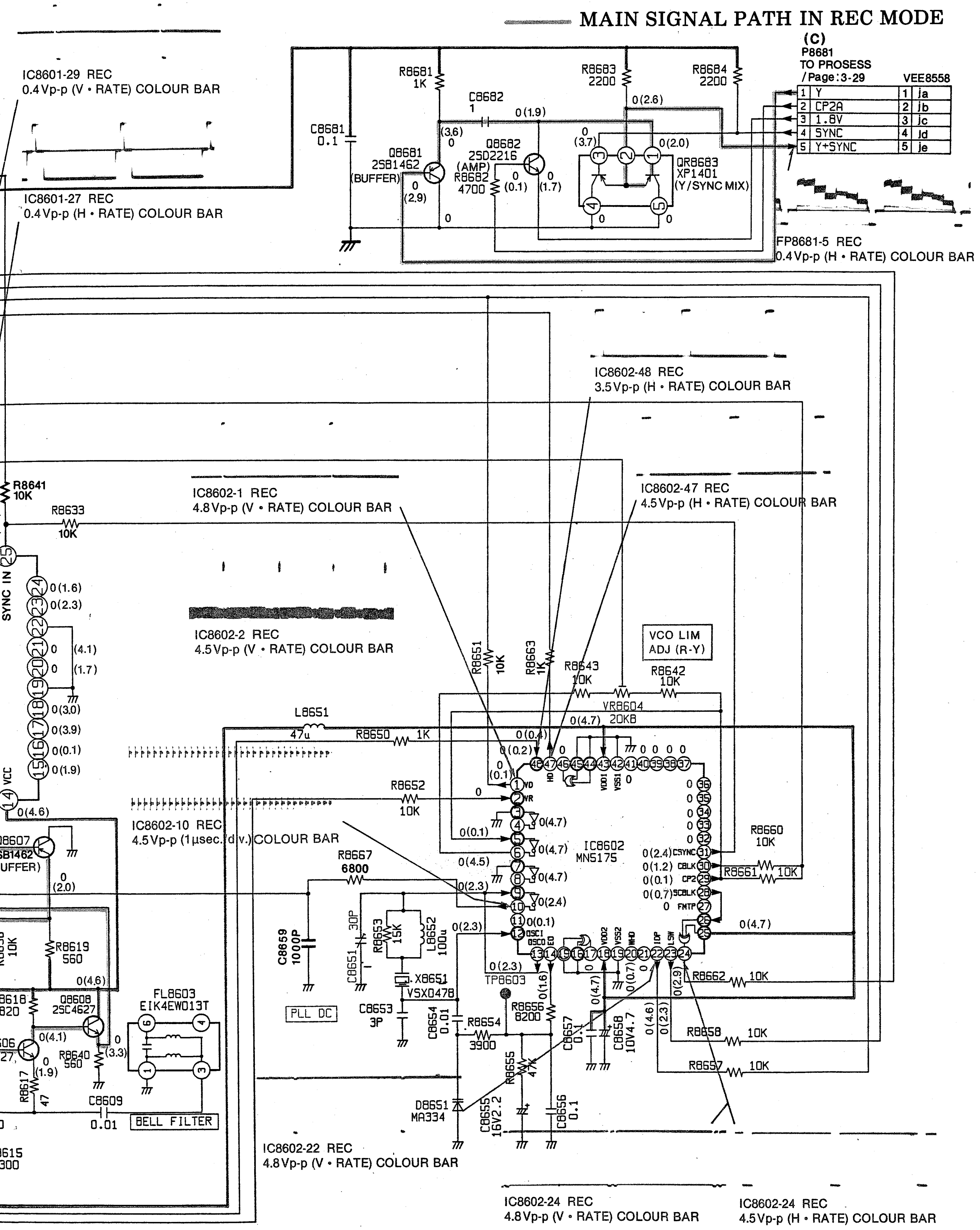
Next Page:
SECAM ENCODER Section

3-19. SECAM ENCODER SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
TO SUB CHROMA / Page:3-59
CSIG
GND
EESV
MUTE
TP8602
TP8602 REC
0.4Vp-p (H • RATE) COLOUR BAR
IC8601-31 REC
3Vp-p (H • RATE) COLOUR BAR
IC8601-34 REC
0.2Vp-p (H • RATE) COLOUR BAR
IC8601-33 REC
0.2Vp-p (H • RATE) COLOUR BAR
IC8601-29 REC
0.4Vp-p (V • RATE) COLOUR BAR
IC8601-27 REC
0.4Vp-p (H • RATE) COLOUR BAR
(C) P8681
TO PROSESS
/Page:3-29
VEE8558
Y
CP2A
1.8V
SYNC
Y+SYNC
FP8681-5 REC
0.4Vp-p (H • RATE) COLOUR BAR
(A) FP8601
TO PROCESS
/Page:3-29(G-19)
FP304-1 VD
FP304-2 HD
FP304-3 CAMSV
FP304-4 GND
FP304-5 GND
FP304-6 GND
FP304-7 R-Y
FP304-8 B-Y
IC8601-36 REC
0.4Vp-p (H • RATE) COLOUR BAR
IC8601-39 REC
0.7Vp-p (H • RATE) COLOUR BAR
IC8601-40 REC
0.7Vp-p (H • RATE) COLOUR BAR
Q8601 2SD2216 (BUFFER)
Q8602 2SD2216 (BUFFER)
Q8603 2SC4627
Q8681 2SB1462 (BUFFER)
Q8682 2SD2216 (AMP)
QR8683 XP1401 (Y/SYNC MIX)
Q8604 2SB1462 (MUTE)
Q8605 2SD2216 (MUTE)
Q8606 2SC4627
Q8607 2SB1462 (BUFFER)
Q8608 2SC4627
D8601 MA132K
D8602 MA132K
D8651 MA334
IC8601 M51282FP
PRE EMP.IN
PRE EMP.OUT
C MOD. IN
10fH, U/L LIM
VREF2.5V
GND
282fH
VCO LIM AMP OUT
VCC
SUB CARRIER IN
SUB CARRIER OUT
SYNC IN
SCBLK
LSW
IDP+VD
HD
CP+CBL
GAIN
B-Y
R-Y
VCO LIM ADJ
VCO LIM ADJ (R-Y)
VR8602 10KB
VR8601 10KB
VR8604 20KB
VID PULSE LEVEL
L8601 47u
L8602 VL00426J100
L8651 47u
FL8601 ELB4A515
FL8603 EIK4EW013T
BELL FILTER
PLL DC
X8651 VSX0478
TP8601
TP8603
TP8601 REC
0.6Vp-p (H • RATE) COLOUR BAR
IC8602-48 REC
3.5Vp-p (H • RATE) COLOUR BAR
IC8602-1 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-47 REC
4.5Vp-p (H • RATE) COLOUR BAR
IC8602-2 REC
4.5Vp-p (V • RATE) COLOUR BAR
IC8602-10 REC
4.5Vp-p (1μsec. d v.) COLOUR BAR
IC8602 MN5175
IC8602-22 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-24 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-24 REC
4.5Vp-p (H • RATE) COLOUR BAR
IC8601
PRE-EMP. OUT
C. MOD IN
ID
10fH, U/L LIM. LEVEL ADJ.
V. REF 2
GND 2 (C)
282fH IN
FM DET 1
FM DET 2
VCO 1H
IC8602
VDD VSS
E
D
C
B
A
1
2
3
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

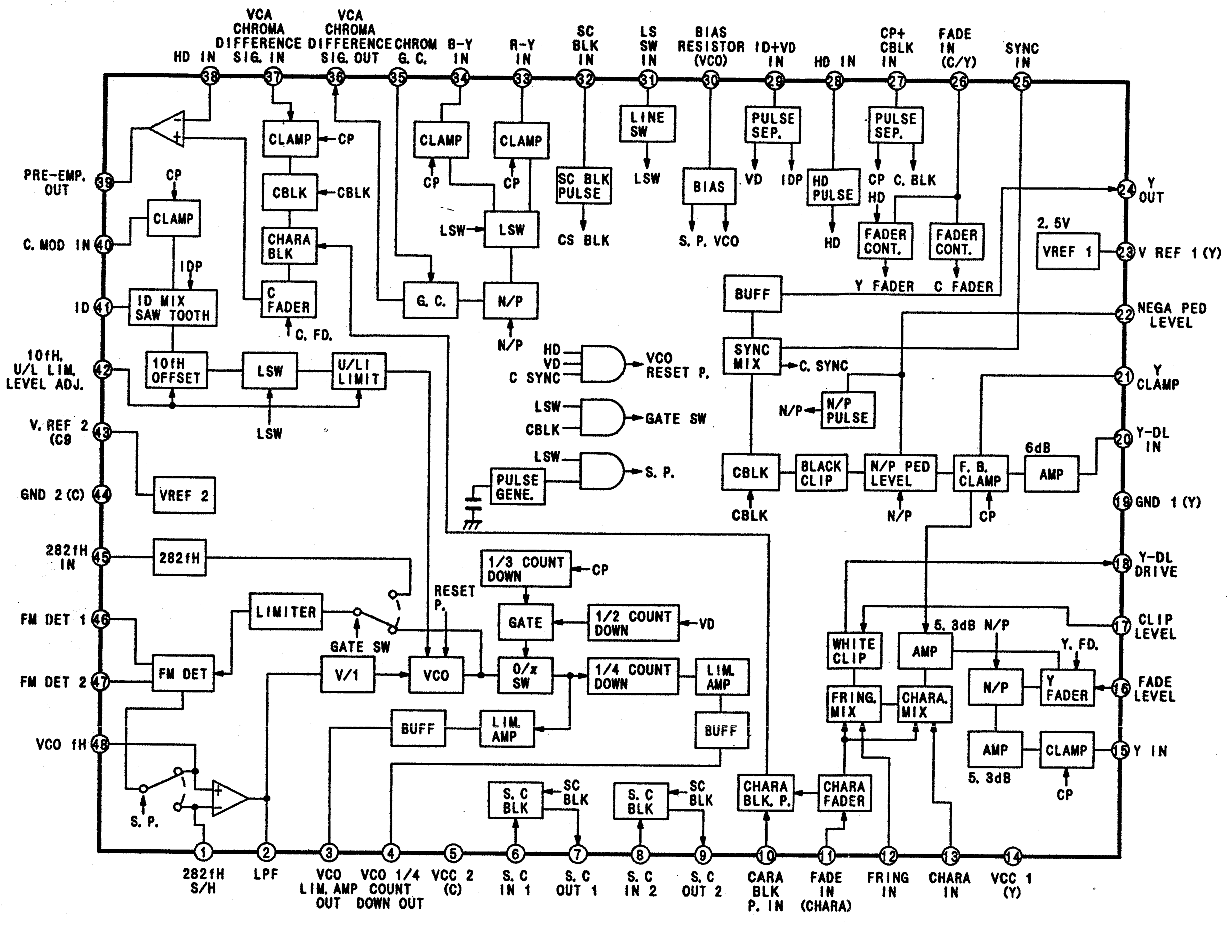
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART. THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH SECAM COLOUR SIGNAL.


MAIN SIGNAL PATH IN REC MODE
(C)
P8681
TO PROSESS
/Page:3-29
VEE8558
Y
CP2A
1.8V
SYNC
Y+SYNC
IC8601-29 REC
0.4Vp-p (V • RATE) COLOUR BAR
IC8601-27 REC
0.4Vp-p (H • RATE) COLOUR BAR
R8681 1K
C8682 1
C8681 0.1
Q8681 2SB1462 (BUFFER)
Q8682 2SD2216 (AMP)
R8682 4700
R8683 2200
R8684 2200
QR8683 XP1401 (Y/SYNC MIX)
FP8681-5 REC
0.4Vp-p (H • RATE) COLOUR BAR
IC8602-48 REC
3.5Vp-p (H • RATE) COLOUR BAR
IC8602-1 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-47 REC
4.5Vp-p (H • RATE) COLOUR BAR
IC8602-2 REC
4.5Vp-p (V • RATE) COLOUR BAR
IC8602-10 REC
4.5Vp-p (1μsec./div.) COLOUR BAR
R8641 10K
R8633 10K
SYNC IN
VCC
Q8607 2SB1462 (BUFFER)
R8619 560
Q8608 2SC4627
R8640 560
R8617 47
C8609 0.01
FL8603 EIK4EW013T
BELL FILTER
VCO LIM ADJ (R-Y)
R8651 10K
R8663 1K
R8643 10K
R8642 10K
VR8604 20KB
L8651 47u
R8650 1K
R8652 10K
R8667 6800
IC8602 MN5175
R8660 10K
R8661 10K
C8659 1000P
C8651 30P
R8653 15K
L8652 100u
X8651 VSX0478
C8653 3P
PLL DC
C8654 0.01
R8654 3900
TP8603
R8656 8200
C8657 0.1
C8658 10V4.7
R8662 10K
R8658 10K
R8657 10K
R8655 47K
D8651 MA334
C8655 16V2.2
C8656 0.1
IC8602-22 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-24 REC
4.8Vp-p (V • RATE) COLOUR BAR
IC8602-24 REC
4.5Vp-p (H • RATE) COLOUR BAR

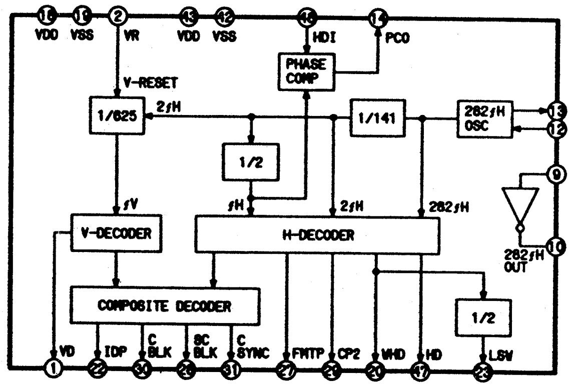
THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH SECAM COLOUR SIGNAL.

5 6 7

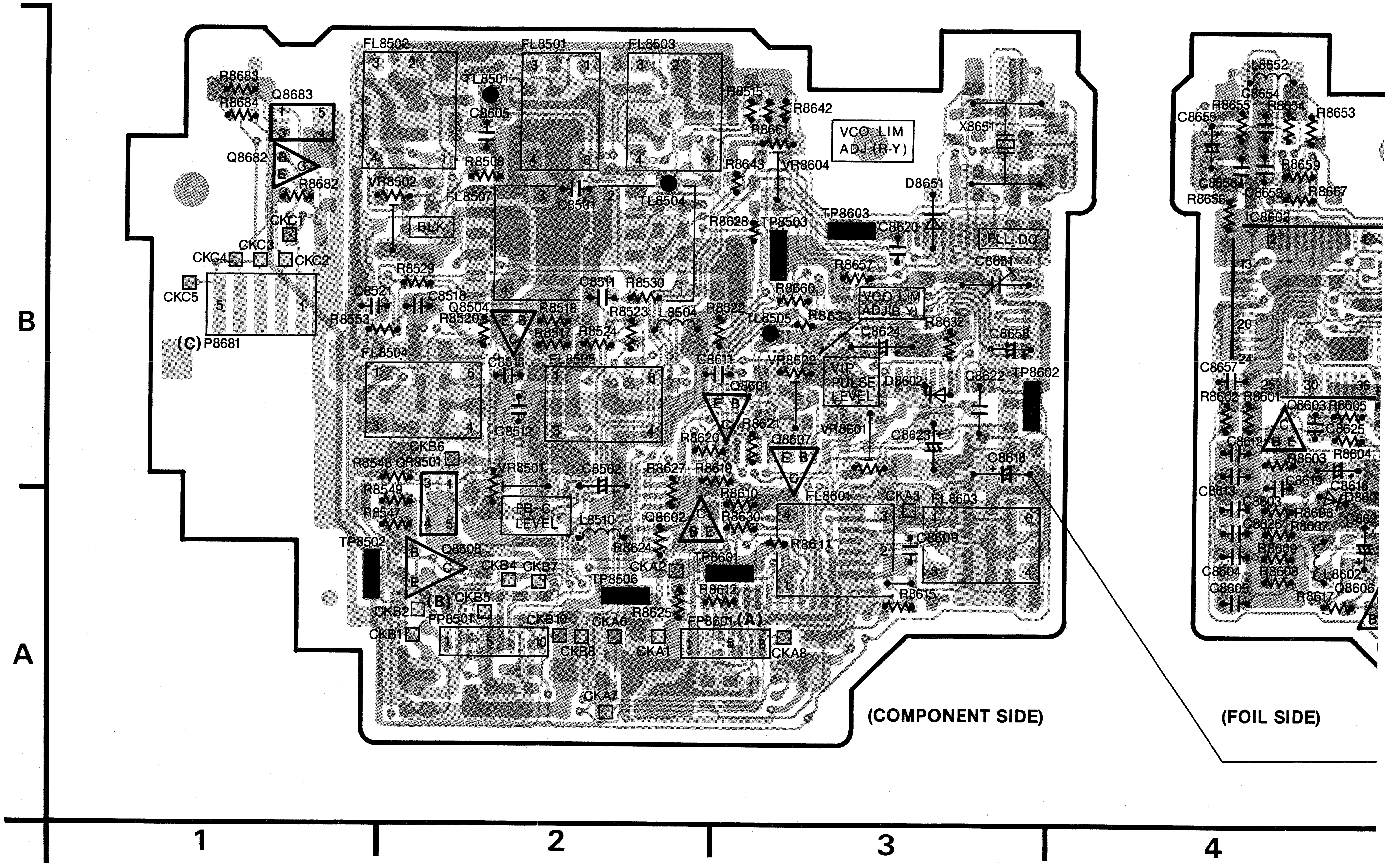
IC8601 (M51282FP)

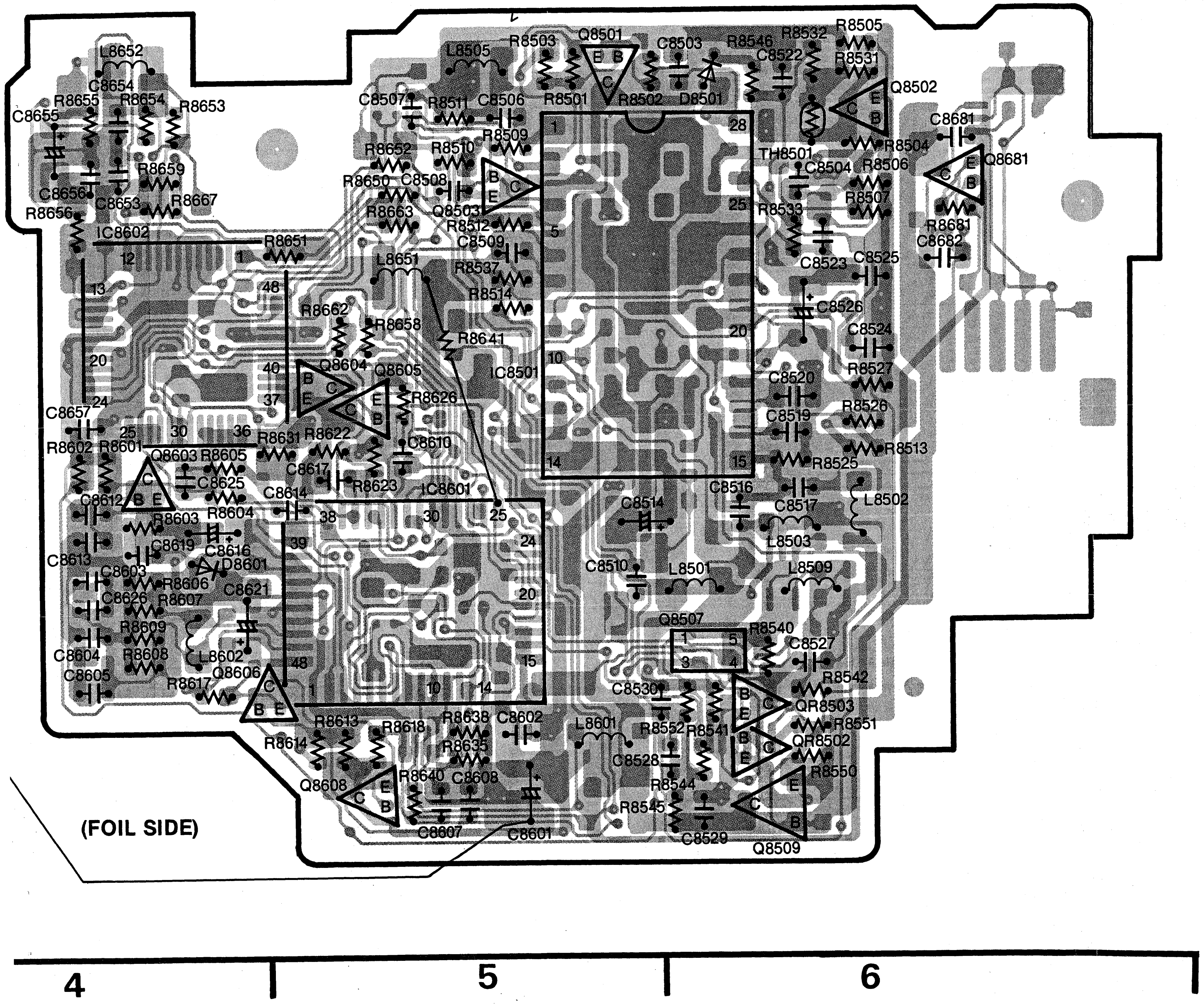

HD IN
VCA CHROMA DIFFERENCE SIG. IN
VCA CHROMA DIFFERENCE SIG. OUT
CHROM G. C.
B-Y IN
R-Y IN
SC BLK IN
LS SW IN
BIAS RESISTOR (VCO)
ID+VD IN
HD IN
CP+ CBLK IN
FADE IN (C/Y)
SYNC IN
PRE-EMP. OUT
C. MOD IN
ID
10fH, U/L LIM. LEVEL ADJ.
V. REF 2 (C)
GND 2 (C)
282fH IN
FM DET 1
FM DET 2
VCO fH
Y OUT
2.5V
V REF 1 (Y)
NEGA PED LEVEL
Y CLAMP
Y-DL IN
GND 1 (Y)
Y-DL DRIVE
CLIP LEVEL
FADE LEVEL
Y IN
282fH S/H
LPF
VCO LIM. AMP OUT
VCO COUNT DOWN
1/4 COUNT DOWN OUT
VCC 2 (C)
S. C IN 1
S. C OUT 1
S. C IN 2
S. C OUT 2
CARA BLK P. IN
FADE IN (CHARA)
FRING IN
CHARA IN
VCC 1 (Y)
CLAMP
CBLK
CHARA BLK
C FADER
C. FD.
ID MIX SAW TOOTH
IDP
10fH OFFSET
LSW
U/L LIMIT
VREF 2
282fH
LIMITER
GATE SW
RESET P.
FM DET
V/I
VCO
BUFF
LIM. AMP
1/3 COUNT DOWN
GATE
1/2 COUNT DOWN
0/π SW
1/4 COUNT DOWN
G. C.
N/P
SC BLK PULSE
CS BLK
LINE SW
BIAS
S. P. VCO
PULSE SEP.
HD PULSE
FADER CONT.
Y FADER
C FADER
VREF 1
BUFF
SYNC MIX
C. SYNC
N/P PULSE
VCO RESET P.
GATE SW
S. P.
PULSE GENE.
BLACK CLIP
N/P PED LEVEL
F. B. CLAMP
6dB
AMP
WHITE CLIP
5. 3dB N/P
Y. FD.
Y FADER
FRING. MIX
CHARA. MIX
5. 3dB
CHARA BLK. P.
CHARA FADER
S. C BLK
SC BLK

IC8602 (MN5175)


VDD
VSS
VR
HDI
PCO
V-RESET
PHASE COMP
1/625
2fH
1/141
282fH OSC
1/2
fV
fH
2fH
282fH
V-DECODER
H-DECODER
282fH OUT
COMPOSITE DECODER
1/2
VD
IDP
C BLK
SC BLK
C SYNC
FMTP
CP2
WHD
HD
LSW

3-20. SUB CHROMA & SECAM ENCODER C.B.A. (VEP08156A)

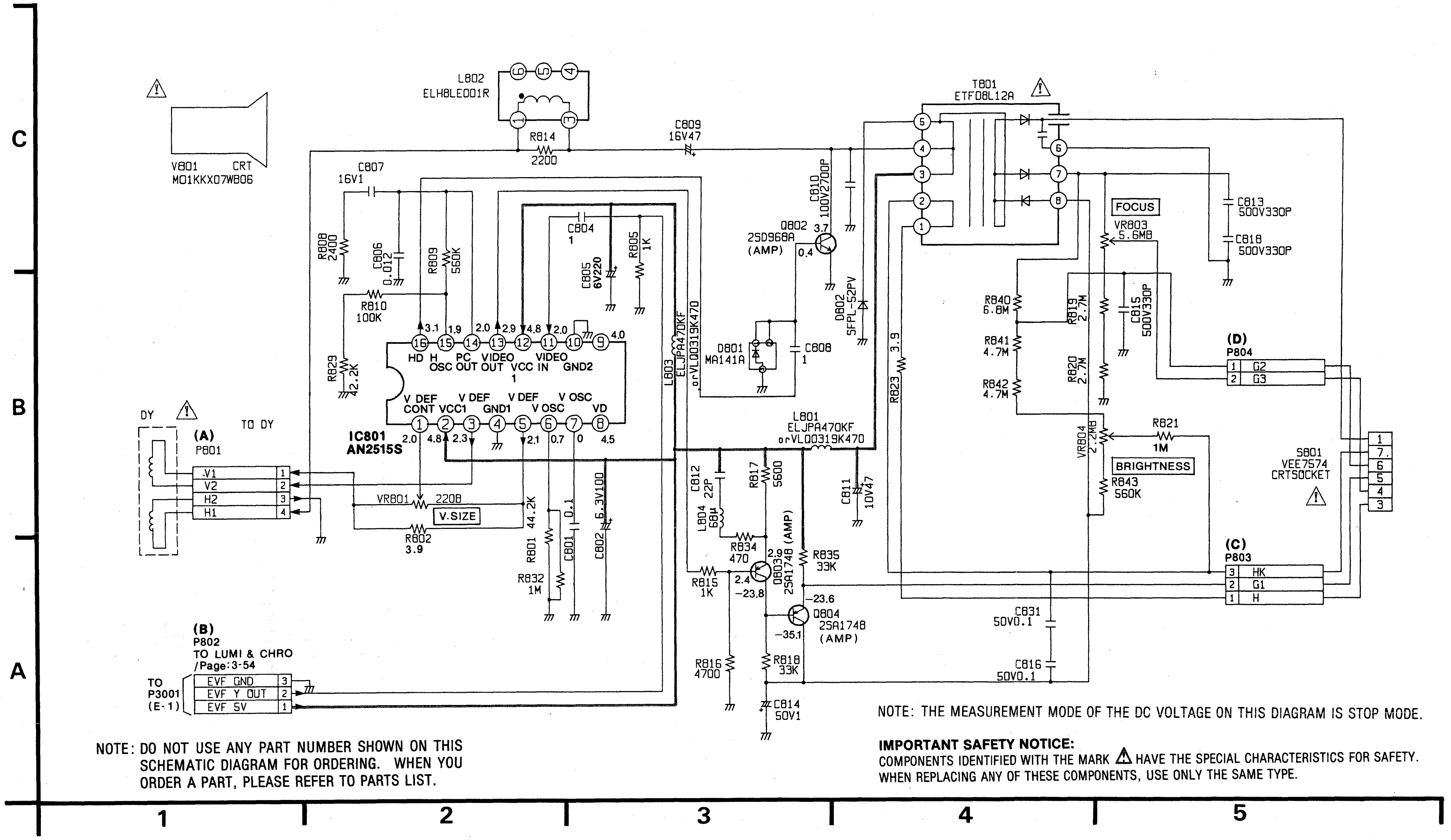

B
A
1
2
3
4
R8683
R8684
Q8683
Q8682
R8682
CKC1
CKC3
CKC4
CKC2
CKC5
P8681
(C)
FL8502
FL8501
FL8503
TL8501
C8505
R8508
VR8502
FL8507
BLK
C8501
TL8504
R8515
R8642
R8661
VR8604
R8643
VCO LIM ADJ (R-Y)
X8651
D8651
R8628
TP8503
TP8603
C8620
PLL DC
C8651
R8657
R8660
VCO LIM ADJ(B-Y)
R8633
TL8505
R8632
C8624
C8658
R8529
C8521
C8518
Q8504
R8553
R8520
R8518
R8517
R8524
C8511
R8530
R8523
L8504
R8522
FL8504
C8515
FL8505
C8512
C8611
VR8602
VIP PULSE LEVEL
D8602
C8622
TP8602
Q8601
R8621
R8620
Q8607
VR8601
C8623
C8618
CKB6
R8548
QR8501
R8549
R8547
VR8501
PB-C LEVEL
C8502
R8627
R8619
R8610
Q8602
R8630
FL8601
CKA3
FL8603
C8609
L8510
R8624
R8611
TP8502
Q8508
CKB4
CKB7
CKA2
TP8506
TP8601
R8612
R8615
(B)
CKB5
CKB2
FP8501
CKB1
CKB10
CKA6
R8625
FP8601
(A)
CKB8
CKA1
CKA8
CKA7
(COMPONENT SIDE)
L8652
C8654
C8655
R8655
R8654
R8653
C8656
R8659
R8656
C8653
R8667
IC8602
12
13
20
24
25
30
36
C8657
R8602
R8601
Q8603
R8605
C8625
C8612
R8603
R8604
C8613
C8619
C8616
C8603
R8606
C8626
R8607
R8609
C8604
R8608
L8602
C8605
R8617
Q8606
(FOIL SIDE)


L8652
C8654
R8655
R8654
R8653
C8655
C8656
R8659
C8653
R8667
R8656
IC8602
R8651
L8505
R8503
Q8501
C8503
R8546
R8532
R8505
C8522
R8531
Q8502
C8507
R8511
C8506
R8501
R8502
D8501
R8509
R8652
R8510
R8650
C8508
R8663
Q8503
R8512
C8509
TH8501
C8504
R8506
R8504
C8681
Q8681
R8507
R8533
R8681
C8682
C8523
C8525
L8651
R8537
R8514
C8526
R8662
R8658
R8641
C8524
Q8604
Q8605
IC8501
C8520
R8527
R8626
C8657
C8519
R8526
R8602
R8601
R8631
R8622
C8610
R8513
Q8603
R8605
C8617
C8625
R8623
R8525
IC8601
C8516
C8614
C8612
R8604
C8514
C8517
L8502
R8603
C8619
C8616
L8503
C8613
D8601
C8510
L8501
L8509
C8603
R8606
C8621
C8626
R8607
R8609
Q8507
R8540
C8527
C8604
R8608
L8602
C8605
Q8606
R8617
C8530
R8542
QR8503
R8551
R8613
R8618
R8638
C8602
L8601
R8552
R8541
R8614
R8635
QR8502
C8528
R8550
Q8608
R8640
C8608
R8544
R8545
C8607
C8601
C8529
Q8509
(FOIL SIDE)
4
5
6

SEÇAM ENCODER C.B.A.	
Integrated Circuit	
IC8501	B-5
IC8601	B-5
IC8602	B-4
Transistor	
Q8501	B-5
Q8502	B-6
Q8503	B-5
Q8504	B-2
Q8507	A-6
Q8509	A-6
Q8548	A-2
Q8601	B-3
Q8602	A-2
Q8603	B-4
Q8604	B-5
Q8605	B-5
Q8606	A-4
Q8607	B-3
Q8608	A-5
Q8681	B-6
Q8682	B-1
Q8683	B-1
Transistor & Resistor	
QR8502	A-6
QR8503	A-6
Test Point	
TL8501	B-2
TL8504	B-2
TL8505	B-3
TP8502	A-1
TP8503	B-3
TP8506	A-2
TP8601	A-2
TP8602	B-3
TP8603	B-3
Adjustment	
C8651	B-3
VR8501	B-2
VR8502	B-2
VR8601	B-3
VR8602	B-3
VR8604	B-3
Connector	
FP8501	A-2
FP8601	A-2
P8681	B-1

ADDRESS INFORMATION

3-21. EVF SCHEMATIC DIAGRAM

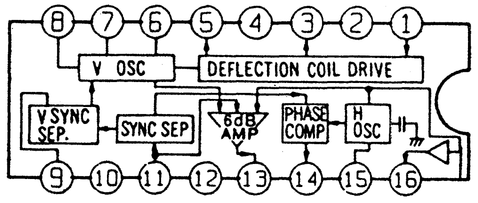

C
B
A
1
2
3
4
5
V801 CRT
M01KKX07WB06
L802
ELH8LE001R
R814
2200
C809
16V47
C807
16V1
R808
2400
C806
0.012
R809
560K
C804
1
C805
6V220
R805
1K
R810
100K
R829
42.2K
IC801
AN2515S
HD H OSC
PC OUT
VIDEO OUT
VIDEO VCC IN
GND2
V DEF CONT
V DEF VCC1
GND1
V DEF V OSC
V OSC
VD
Q802
2SD968A
(AMP)
C810
100V2700P
D802
SFPL-52PV
D801
MA141A
C808
1
L803
ELJPA470KF
orVL00319K470
L801
ELJPA470KF
orVL00319K470
T801
ETF06L12A
FOCUS
VR803
5.6MB
C813
500V330P
C818
500V330P
R840
6.8M
R841
4.7M
R842
4.7M
R819
2.7M
C815
500V330P
R820
2.7M
R823
3.9
VR804
2.2MB
R821
1M
BRIGHTNESS
R843
560K
(D)
P804
G2
G3
S801
VEE7574
CRTSOCKET
(C)
P803
HK
G1
H
C831
50V0.1
C816
50V0.1
DY
TO DY
(A)
P801
V1
V2
H2
H1
VR801 220B
V.SIZE
R802
3.9
R801 44.2K
C801 0.1
C802 6.3V100
R832
1M
C812
22P
L804
68µ
R817
5600
R834
470
C811
10V47
R815
1K
Q803
2SA1748
(AMP)
R835
33K
Q804
2SA1748
(AMP)
R816
4700
R818
33K
C814
50V1
(B)
P802
TO LUMI & CHRO
/Page:3-54
TO
P3001
(E-1)
EVF GND
EVF Y OUT
EVF 5V

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

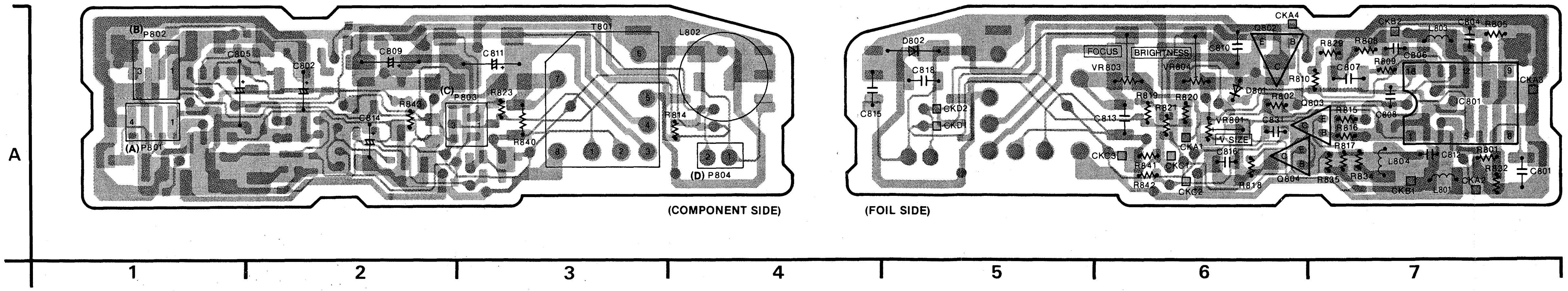
IC801 (AN2515S)


V OSC
DEFLECTION COIL DRIVE
V SYNC SEP.
SYNC SEP
6dB AMP
PHASE COMP
H OSC

EVF C.B.A.	
Integrated Circuit	
IC801	A-7
Transistor	
Q802	A-6
Q803	A-7
Q804	A-6
Adjustment	
VR801	A-6
VR803	A-6
VR804	A-6
Connector	
P801	A-1
P802	A-1
P803	A-3
P804	A-4

ADDRESS INFORMATION

3-22. EVF C.B.A. (VEP28061A)

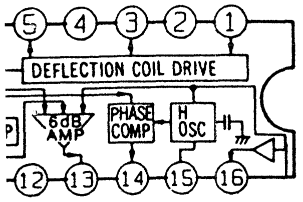

A
(B) P802
(A) P801
C805
C802
C809
C811
T801
L802
(C) P803
R823
R842
C814
R840
R814
(D) P804
D802
C818
C815
FOCUS
BRIGHTNESS
VR803
VR804
C810
Q802
CKA4
CKB2
R829
R808
C804
R805
C807
R809
C806
R810
D801
R802
Q803
R819
R820
R821
C813
VR801
V.SIZE
C831
R815
R816
R817
C816
R841
R842
CKD2
CKD1
CKC3
CKC2
CKC1
R818
Q804
R835
R834
L804
C812
L801
CKB1
CKA2
R801
R832
C801
IC801
CKA3
1
2
3
4
5
6
7

(COMPONENT SIDE)

(FOIL SIDE)

Back Page:
SECAM ENCODER Section

515S)

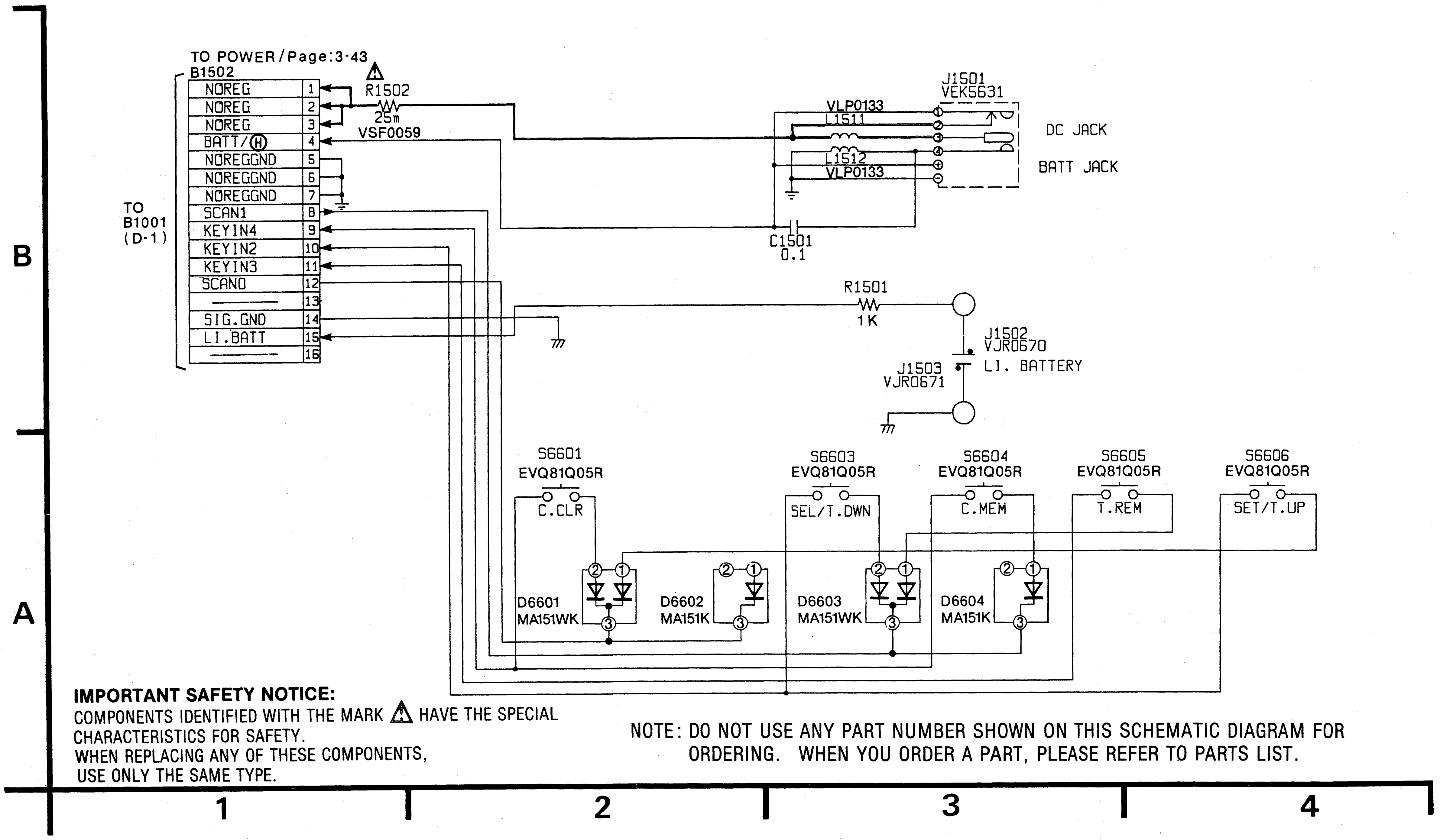


5
4
3
2
1
DEFLECTION COIL DRIVE
6dB AMP
PHASE COMP
H OSC
12
13
14
15
16

C.B.A.	
rated Circuit	
01	A-7
sistor	
02 03 04	A-6 A-7 A-6
stment	
801 803 804	A-6 A-6 A-6
ector	
01 02 03 04	A-1 A-1 A-3 A-4

SS INFORMATION

3-23. DC JACK SCHEMATIC DIAGRAM



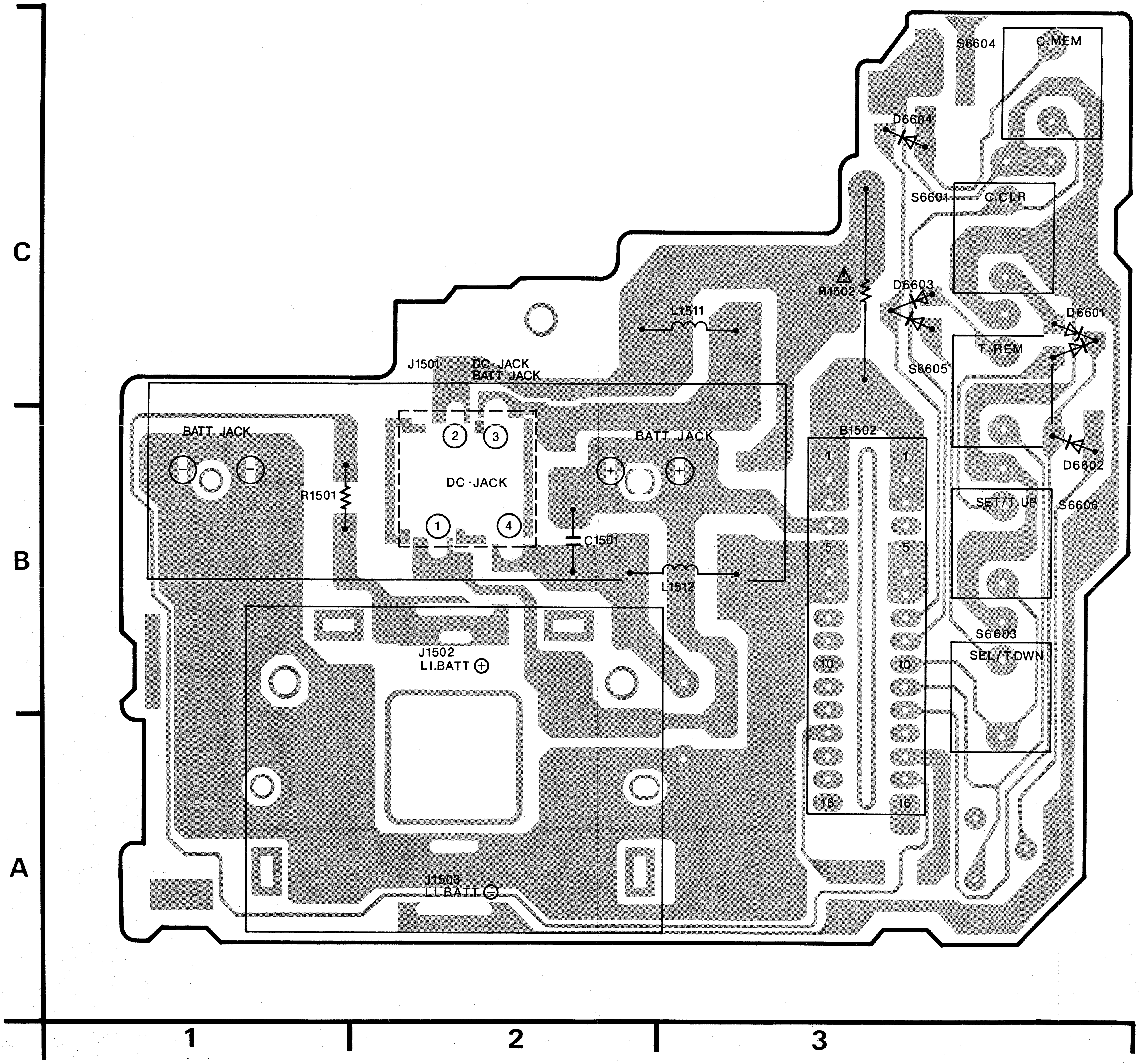
TO POWER/Page:3-43
B1502
NOREG 1
NOREG 2
NOREG 3
BATT/Ⓗ 4
NOREGGND 5
NOREGGND 6
NOREGGND 7
SCAN1 8
KEYIN4 9
KEYIN2 10
KEYIN3 11
SCAN0 12
13
SIG.GND 14
LI.BATT 15
16
TO B1001 (D-1)
R1502
25m
VSF0059
VLP0133
L1511
L1512
VLP0133
J1501
VEK5631
DC JACK
BATT JACK
C1501
0.1
R1501
1K
J1502
VJR0670
J1503
VJR0671
LI. BATTERY
S6601 EVQ81Q05R
C.CLR
S6603 EVQ81Q05R
SEL/T.DWN
S6604 EVQ81Q05R
C.MEM
S6605 EVQ81Q05R
T.REM
S6606 EVQ81Q05R
SET/T.UP
D6601 MA151WK
D6602 MA151K
D6603 MA151WK
D6604 MA151K
B
A
1
2
3
4

IMPORTANT SAFETY NOTICE:

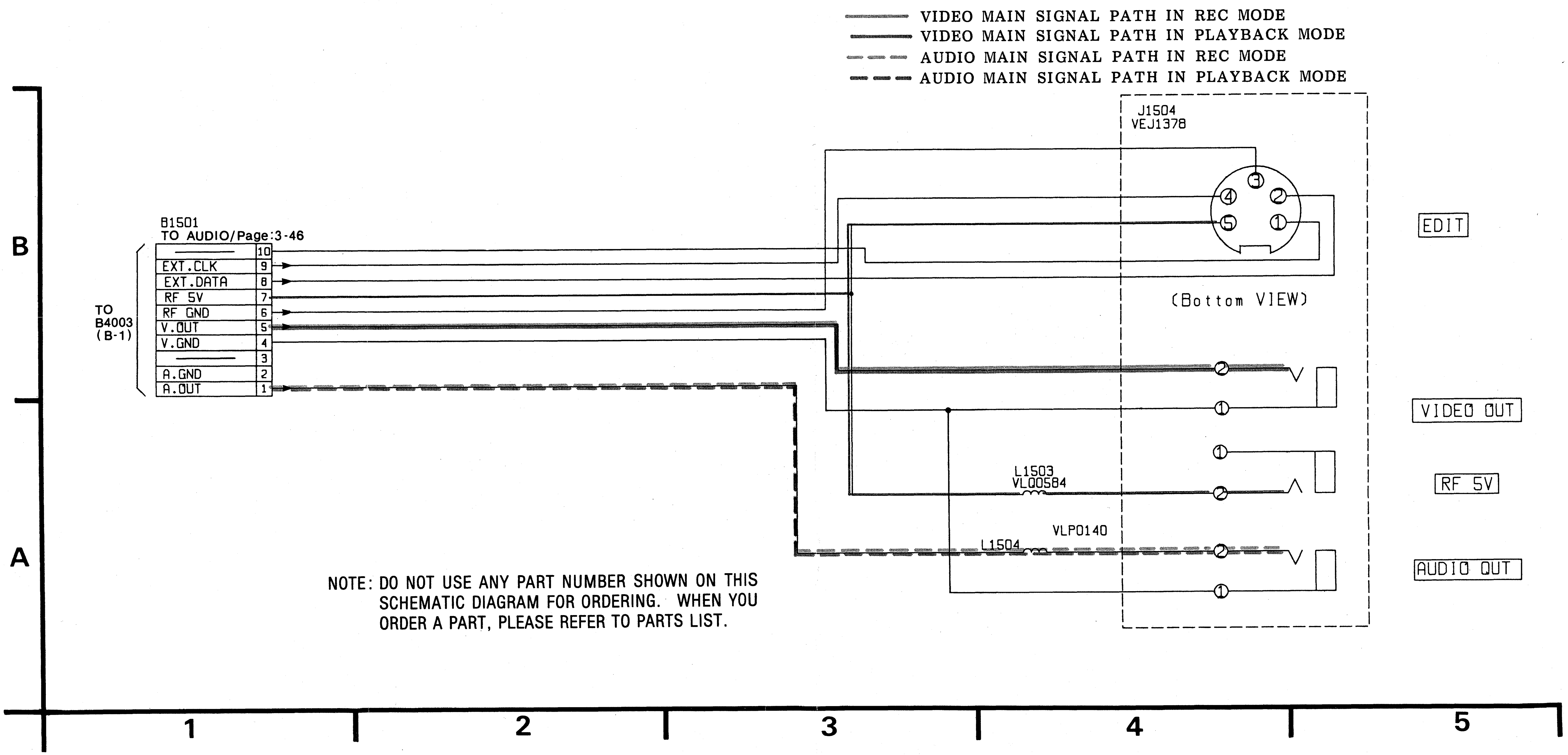
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-24. DC JACK C.B.A. (VEP00T10A)


S6604
C.MEM
D6604
S6601
C.CLR
R1502
D6603
D6601
L1511
T.REM
S6605
J1501
DC JACK
BATT JACK
BATT JACK
2
3
DC·JACK
1
4
R1501
BATT JACK
C1501
L1512
B1502
1
1
5
5
10
10
16
16
D6602
SET/T.UP
S6606
S6603
SEL/T.DWN
J1502
LI.BATT ⊕
J1503
LI.BATT ⊖
C
B
A
1
2
3

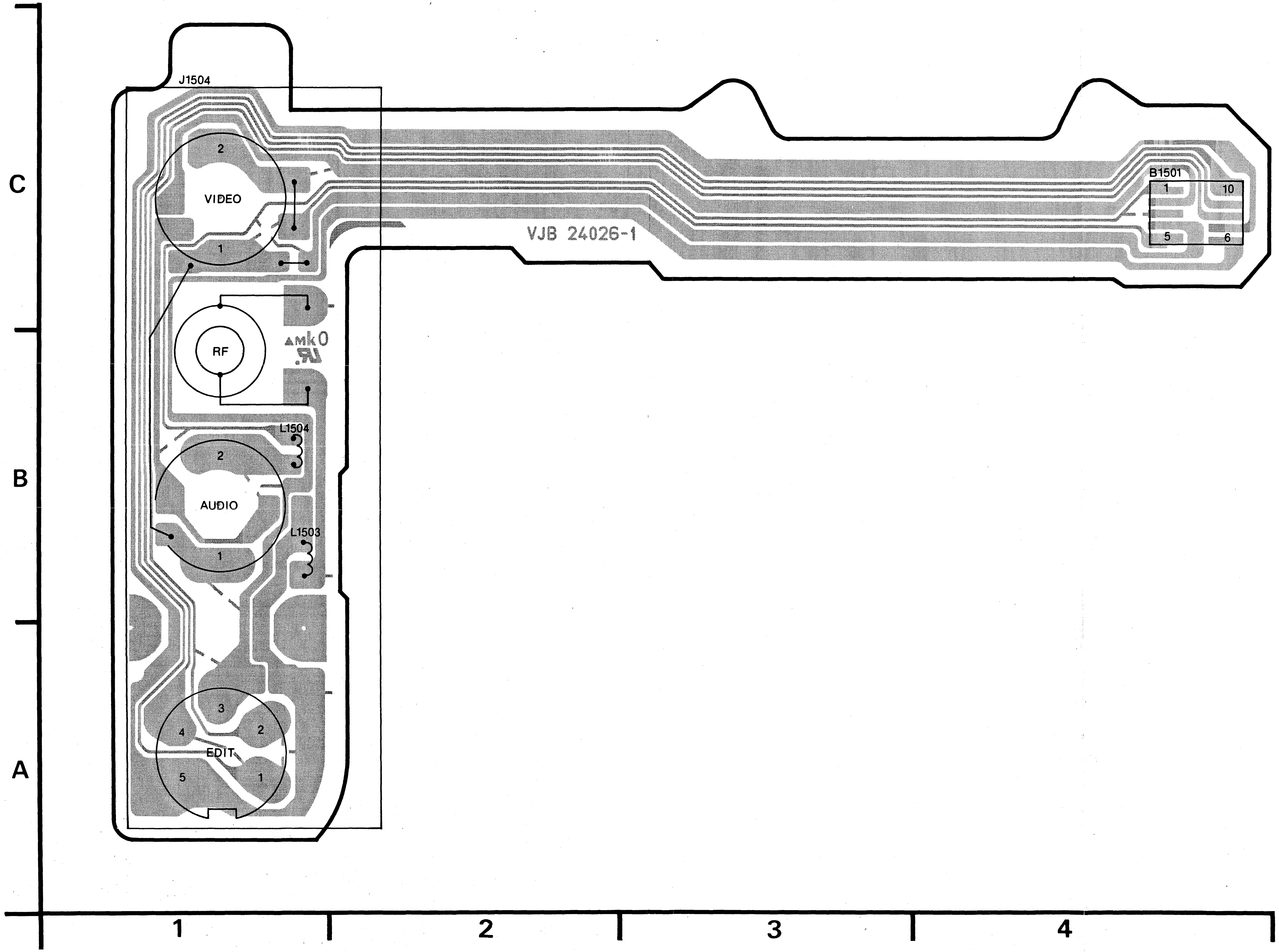
3-25. AV JACK SCHEMATIC DIAGRAM


VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE
B1501
TO AUDIO/Page:3-46
TO
B4003
(B-1)
10
EXT.CLK 9
EXT.DATA 8
RF 5V 7
RF GND 6
V.OUT 5
V.GND 4
3
A.GND 2
A.OUT 1
J1504
VEJ1378
③
④
②
⑤
①
(Bottom VIEW)
EDIT
②
①
VIDEO OUT
①
②
RF 5V
L1503
VLQ0584
VLP0140
L1504
②
①
AUDIO OUT
B
A
1
2
3
4
5

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

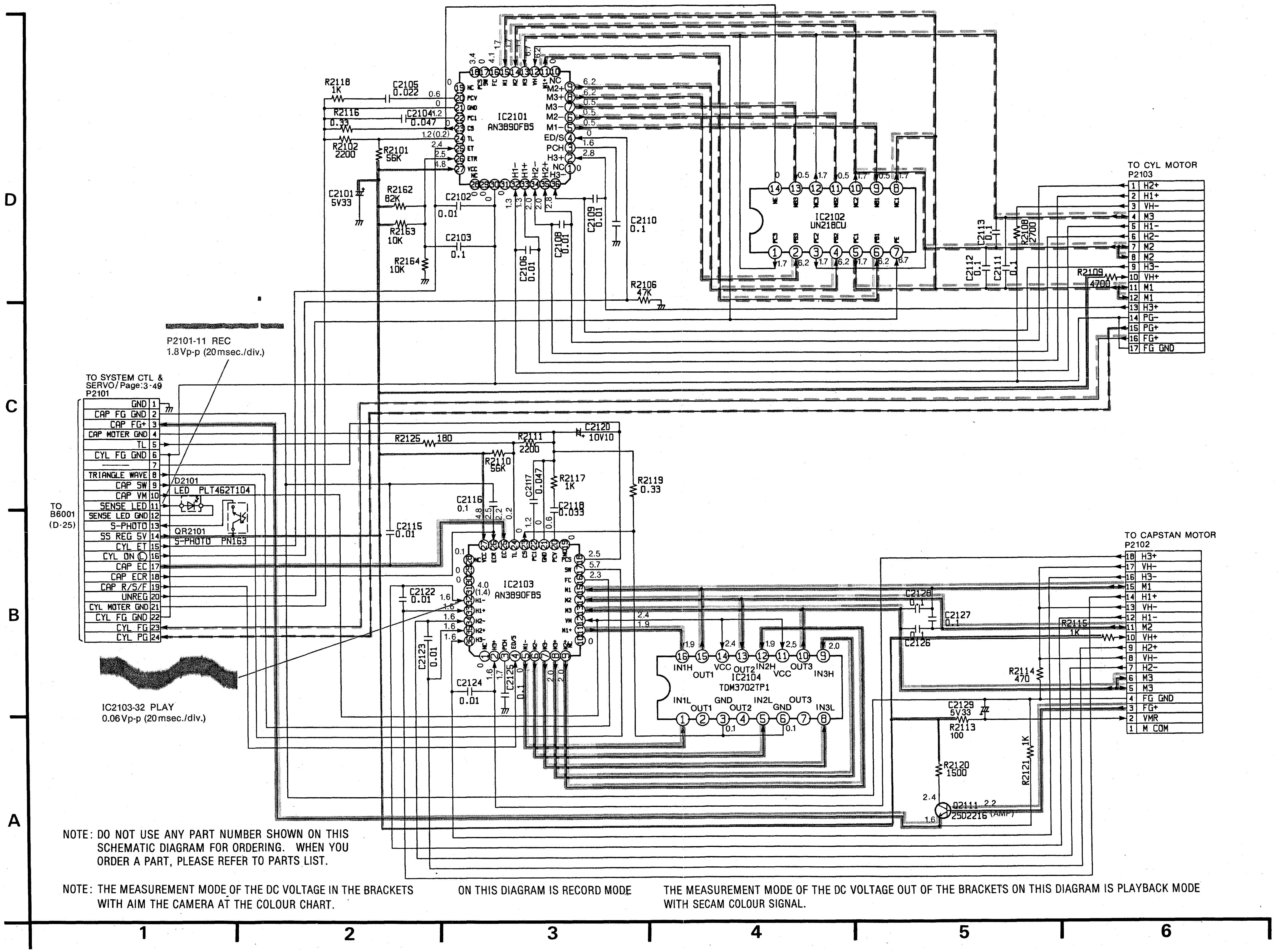
Back Page:
DC JACK Section

3-26. AV JACK C.B.A. (VEP24026A)


J1504
2
VIDEO
1
RF
L1504
2
AUDIO
1
L1503
3
4
2
EDIT
5
1
VJB 24026-1
B1501
1
10
5
6
C
B
A
1
2
3
4

3-27. DRIVE SCHEMATIC DIAGRAM

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP



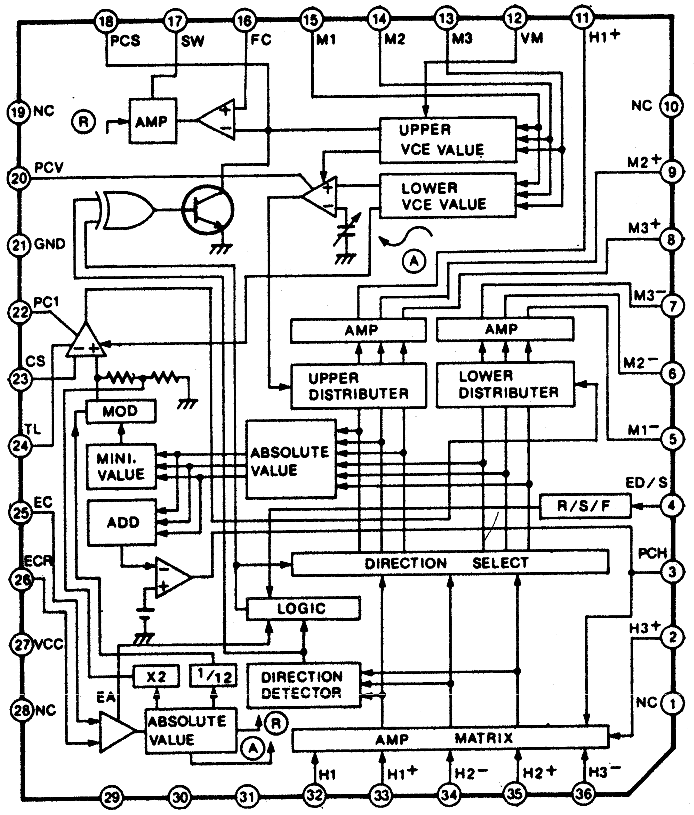
D
C
B
A
1
2
3
4
5
6
IC2101
AN3890FBS
IC2102
UN218CU
IC2103
AN3890FBS
IC2104
TDM3702TP1
R2118 1K
C2105 0.022
R2116 0.33
C2104 0.047
R2102 2200
R2101 56K
C2101 5V33
R2162 82K
R2163 10K
R2164 10K
C2102 0.01
C2103 0.1
C2106 0.01
C2108 0.01
C2109 0.01
C2110 0.1
R2106 4.7K
C2113 0.1
C2112 0.1
C2111 0.1
R2108 2700
R2109 4700
TO CYL MOTOR
P2103
1 H2+
2 H1+
3 VH-
4 M3
5 H1-
6 H2-
7 M2
8 M2
9 H3-
10 VH+
11 M1
12 M1
13 H3+
14 PG-
15 PG+
16 FG+
17 FG GND
P2101-11 REC
1.8Vp-p (20msec./div.)
TO SYSTEM CTL & SERVO/Page:3-49
P2101
GND 1
CAP FG GND 2
CAP FG+ 3
CAP MOTER GND 4
TL 5
CYL FG GND 6
7
TRIANGLE WAVE 8
CAP SW 9
CAP VM 10
SENSE LED 11
SENSE LED GND 12
S-PHOTO 13
SS REG 5V 14
CYL ET 15
CYL ON Ⓛ 16
CAP EC 17
CAP ECR 18
CAP R/S/F 19
UNREG 20
CYL MOTER GND 21
CYL FG GND 22
CYL FG 23
CYL PG 24
TO B6001 (D-25)
D2101 LED PLT462T104
QR2101 S-PHOTO PN163
R2125 180
R2111 2200
C2120 10V10
R2110 56K
C2117 0.047
R2117 1K
C2118 0.033
R2119 0.33
C2116 0.1
C2115 0.01
C2122 0.01
C2123 0.01
C2124 0.01
C2125
C2128 0.1
C2127 0.1
C2126
R2115 1K
R2114 470
C2129 5V33
R2113 100
R2120 1500
R2121 1K
Q2111 2SD2216 (AMP)
TO CAPSTAN MOTOR
P2102
18 H3+
17 VH-
16 H3-
15 M1
14 H1+
13 VH-
12 H1-
11 M2
10 VH+
9 H2+
8 VH-
7 H2-
6 M3
5 M3
4 FG GND
3 FG+
2 VMR
1 M COM
IC2103-32 PLAY
0.06Vp-p (20msec./div.)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

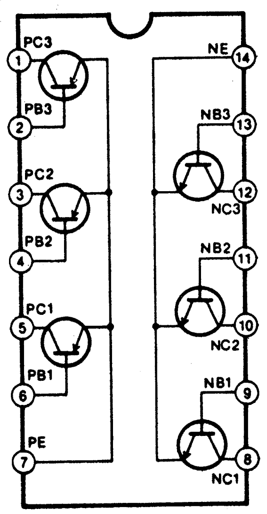
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART. THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH SECAM COLOUR SIGNAL.

Back Page:
AV JACK Section

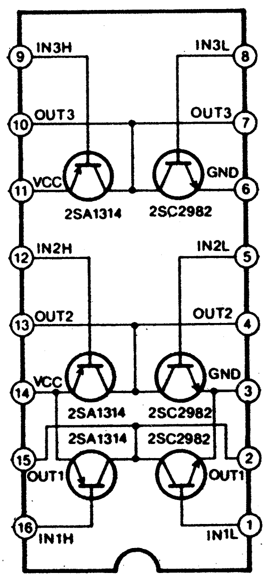
IC2101, 2103 (AN3890FBS)


18 PCS
17 SW
16 FC
15 M1
14 M2
13 M3
12 VM
11 H1+
10 NC
9 M2+
8 M3+
7 M3−
6 M2−
5 M1−
4 ED/S
3 PCH
2 H3+
1 NC
19 NC
20 PCV
21 GND
22 PC1
23 CS
24 TL
25 EC
26 ECR
27 VCC
28 NC
29
30
31
32 H1
33 H1+
34 H2−
35 H2+
36 H3−
R
AMP
UPPER VCE VALUE
LOWER VCE VALUE
A
AMP
AMP
UPPER DISTRIBUTER
LOWER DISTRIBUTER
MOD
MINI. VALUE
ABSOLUTE VALUE
ADD
R/S/F
DIRECTION SELECT
LOGIC
X2
1/12
DIRECTION DETECTOR
EA
ABSOLUTE VALUE
AMP MATRIX

IC2102 (UN218CU)


1 PC3
2 PB3
3 PC2
4 PB2
5 PC1
6 PB1
7 PE
14 NE
13 NB3
12 NC3
11 NB2
10 NC2
9 NB1
8 NC1

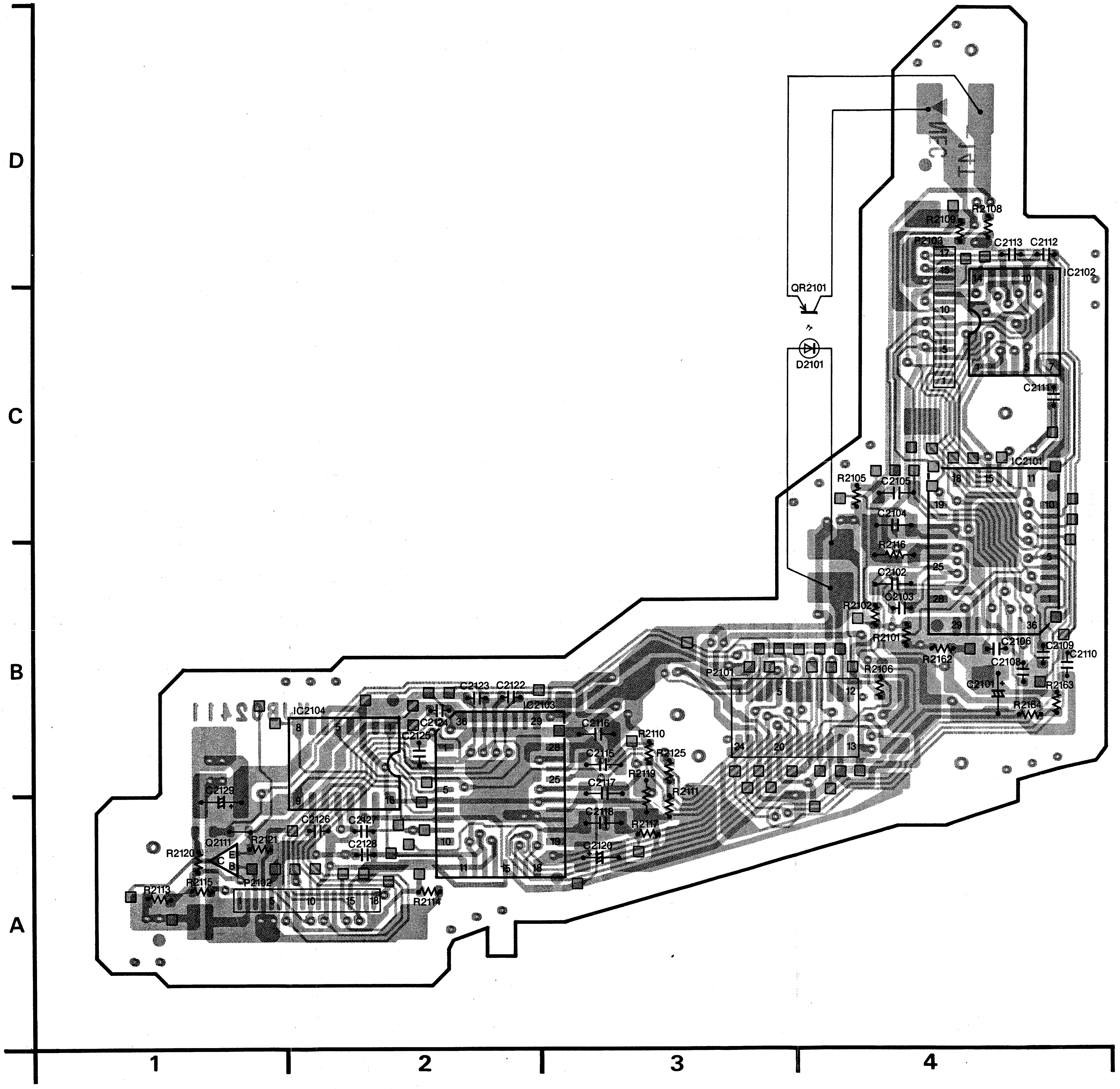
IC2104 (TDM3702TP)


9 IN3H
8 IN3L
10 OUT3
7 OUT3
11 VCC
6 GND
2SA1314
2SC2982
12 IN2H
5 IN2L
13 OUT2
4 OUT2
14 VCC
3 GND
2SA1314
2SC2982
2SA1314
2SC2982
15 OUT1
2 OUT1
16 IN1H
1 IN1L

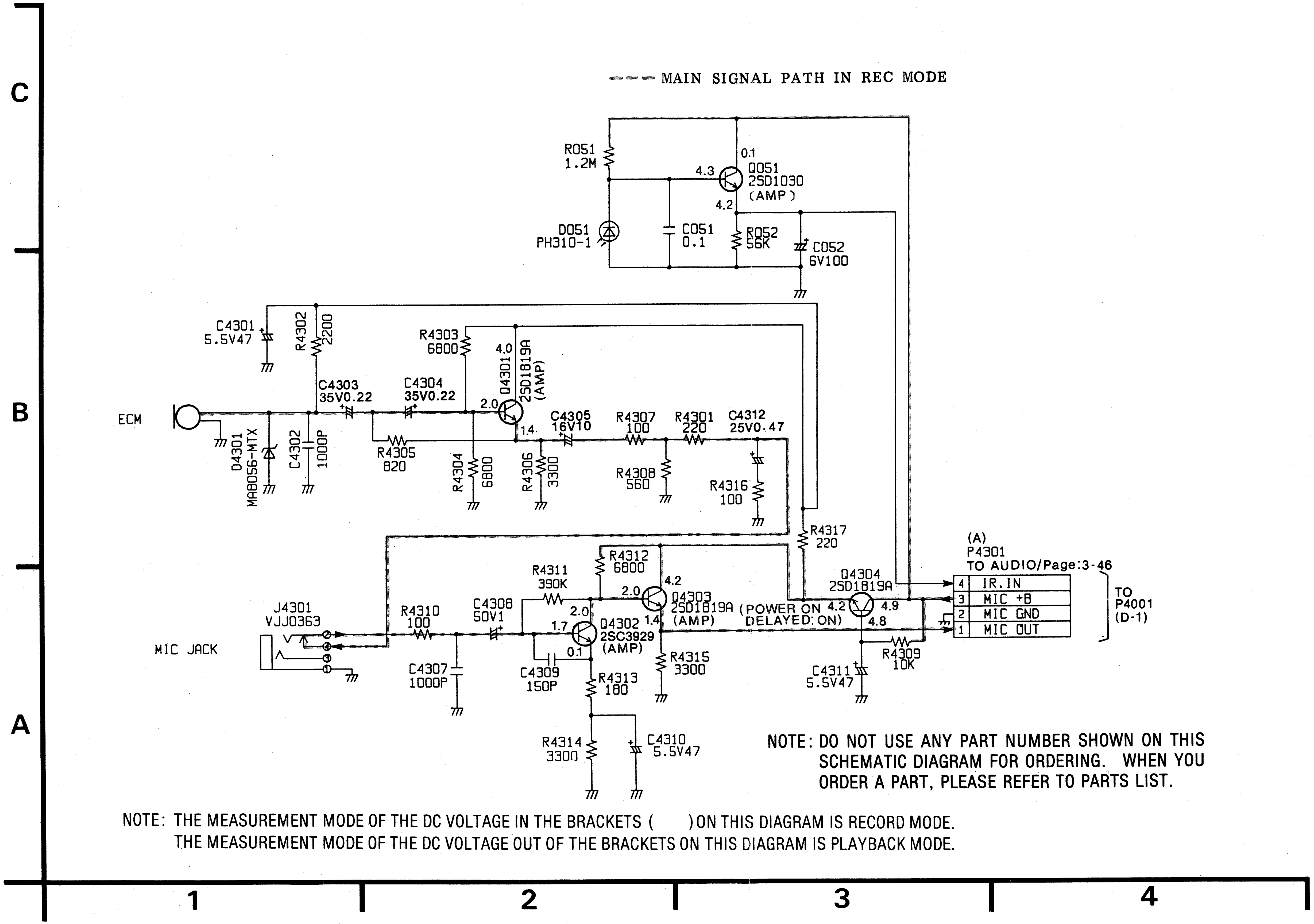
DRIVE C.B.A.	
Integrated Circuit	
IC2101 IC2102 IC2103 IC2104	C-4 D-4 B-2 B-2
Transistor	
Q2111	A-1
Connector	
P2101 P2102 P2151	B-3 A-1 C-4

ADDRESS INFORMATION

3-28. DRIVE C.B.A. (VEP02411A)


D
C
B
A
1
2
3
4
QR2101
D2101
R2108
R2109
P2103
C2113
C2112
IC2102
C2111
IC2101
R2105
C2105
C2104
R2116
C2102
C2103
R2102
R2101
R2106
R2162
C2106
C2109
C2110
C2108
C2101
R2163
R2164
P2101
C2123
C2122
IC2103
IC2104
C2124
C2125
C2116
R2110
C2115
R2125
C2117
R2119
R2111
C2118
R2112
C2120
C2129
C2126
C2127
C2128
R2121
R2120
Q2111
R2113
R2115
P2102
R2114

3-29. MIC/IR SENSOR SCHEMATIC DIAGRAM



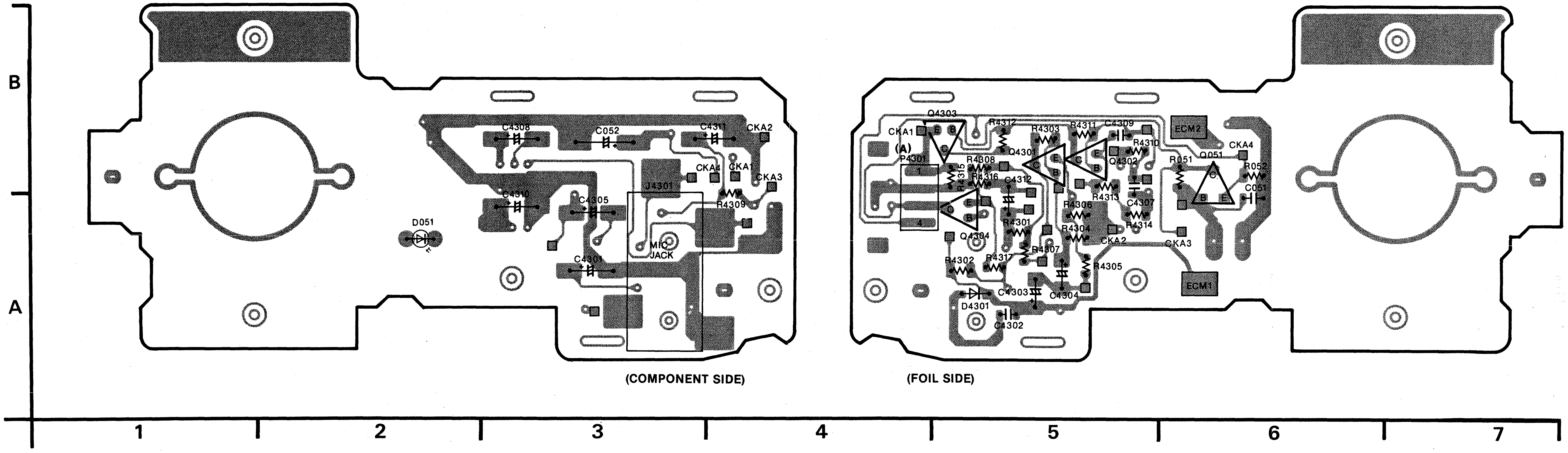
C
B
A
1
2
3
4
MAIN SIGNAL PATH IN REC MODE
R051
1.2M
0.1
4.3
Q051
2SD1030
(AMP)
4.2
D051
PH310-1
C051
0.1
R052
56K
C052
6V100
C4301
5.5V47
R4302
2200
R4303
6800
4.0
Q4301
2SD1819A
(AMP)
C4303
35V0.22
C4304
35V0.22
2.0
ECM
D4301
MA8056-MTX
C4302
1000P
R4305
820
R4304
6800
1.4
R4306
3300
C4305
16V10
R4307
100
R4301
220
C4312
25V0.47
R4308
560
R4316
100
R4317
220
(A)
P4301
TO AUDIO/Page:3-46
TO
P4001
(D-1)
4 IR.IN
3 MIC +B
2 MIC GND
1 MIC OUT
Q4304
2SD1819A
(POWER ON
DELAYED: ON)
4.2
4.9
4.8
R4309
10K
C4311
5.5V47
R4312
6800
R4311
390K
2.0
4.2
Q4303
2SD1819A
(AMP)
1.4
2.0
1.7
Q4302
2SC3929
(AMP)
0.1
J4301
VJJ0363
MIC JACK
R4310
100
C4308
50V1
C4307
1000P
C4309
150P
R4313
180
R4315
3300
R4314
3300
C4310
5.5V47

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

Back Page:
DRIVE Section

3-30. MIC/IR SENSOR C.B.A. (VEK6273)


B
A
1
2
3
4
5
6
7
C4308
C052
C4311
CKA2
CKA4
CKA1
CKA3
J4301
R4309
C4310
C4305
D051
MIC JACK
C4301
Q4303
CKA1
(A)
P4301
R4312
R4303
R4311
C4309
ECM2
R4310
Q4301
Q4302
R4308
R4315
R4316
C4312
R051
Q051
CKA4
R052
C051
R4313
C4307
R4306
R4314
R4304
CKA2
CKA3
R4301
Q4304
R4302
R4317
R4307
R4305
ECM1
D4301
C4303
C4304
C4302
E
B
C

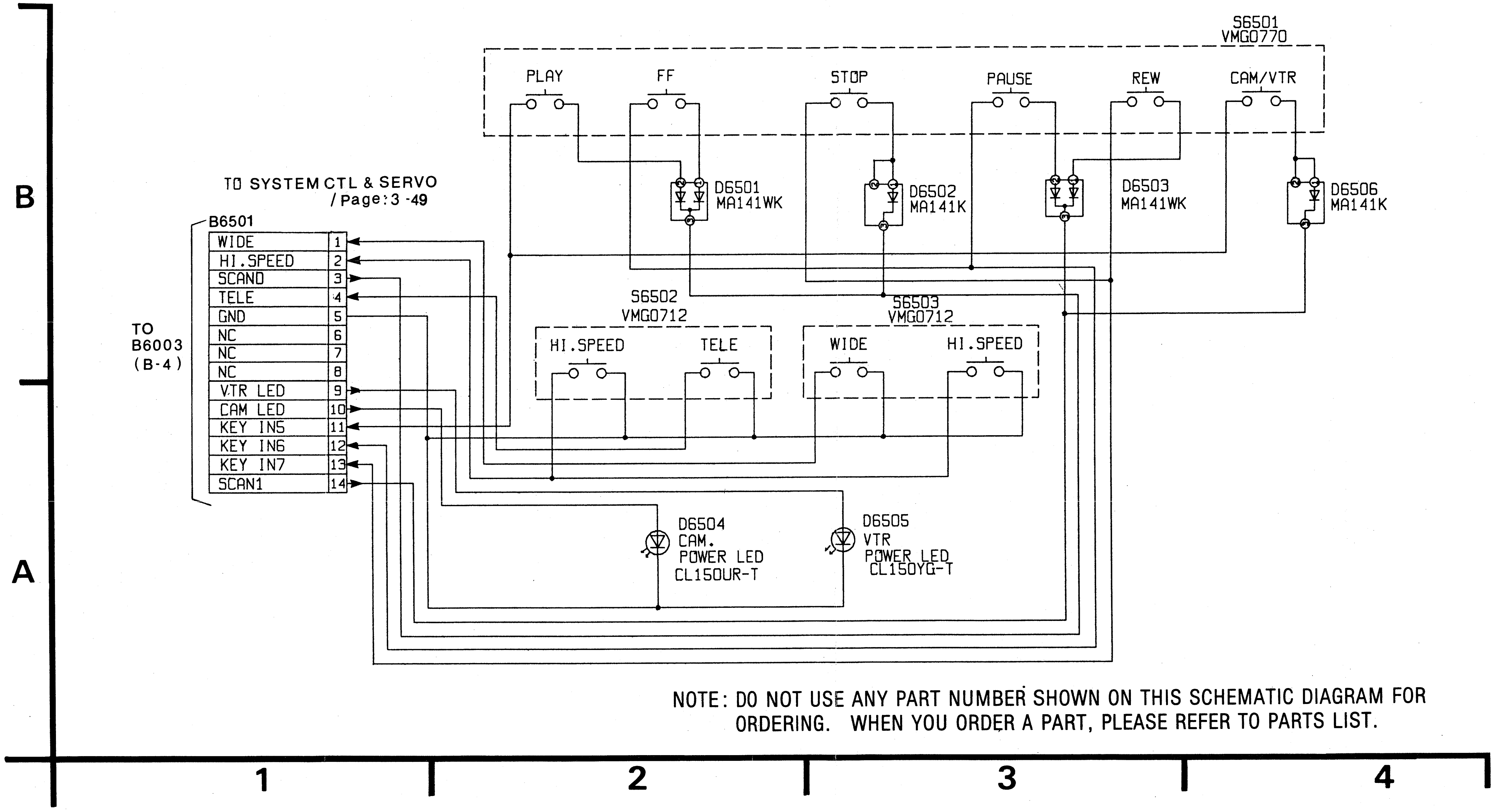
(COMPONENT SIDE)

(FOIL SIDE)

MIC/IR SENSOR C.B.A.	
Transistor	
Q051	B-6
Q4301	B-5
Q4302	B-5
Q4303	B-5
Q4304	A-5
Connector	
P4301	B-4

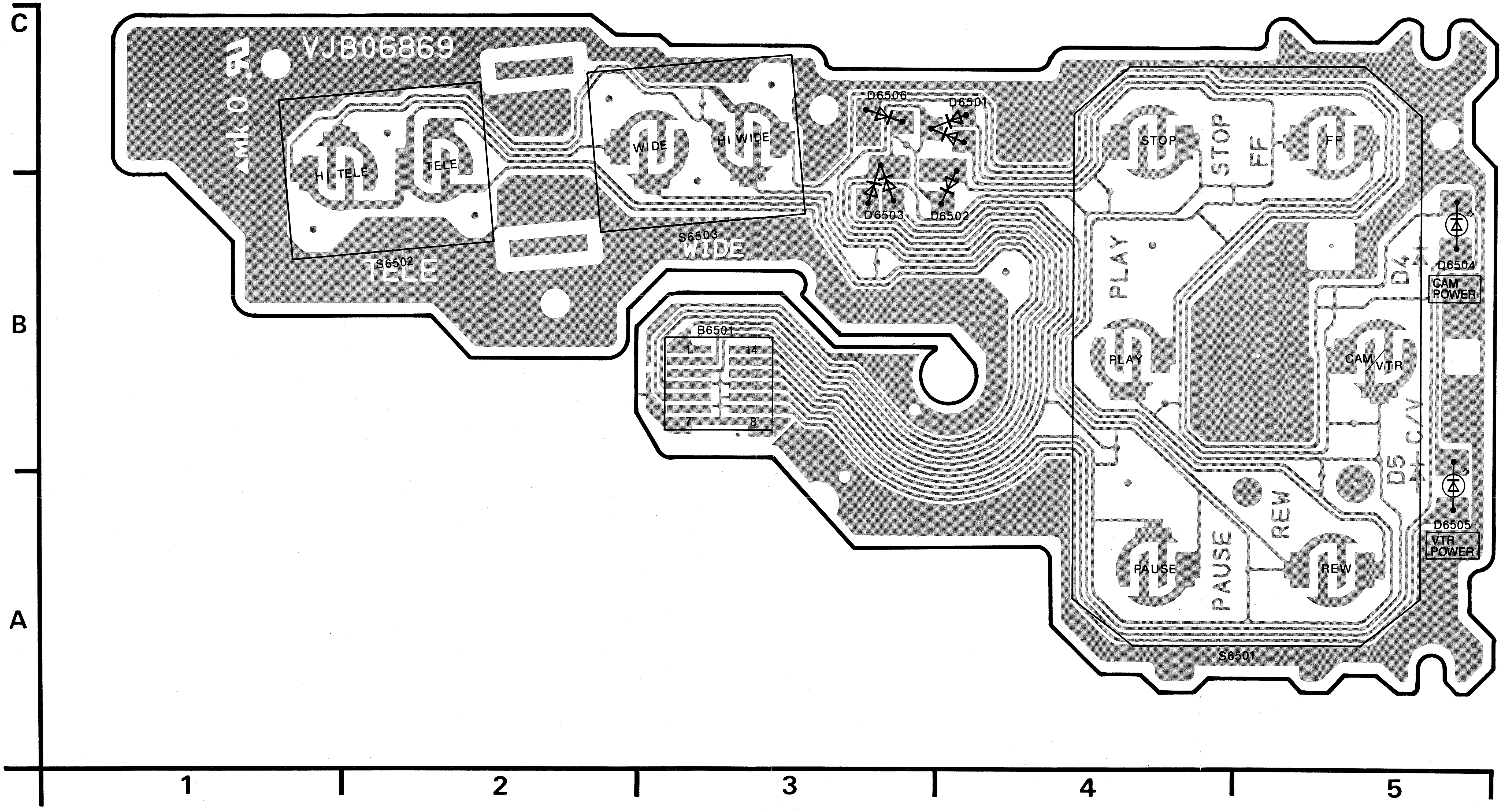
ADDRESS INFORMATION

3-31. VTR OPERATION SCHEMATIC DIAGRAM

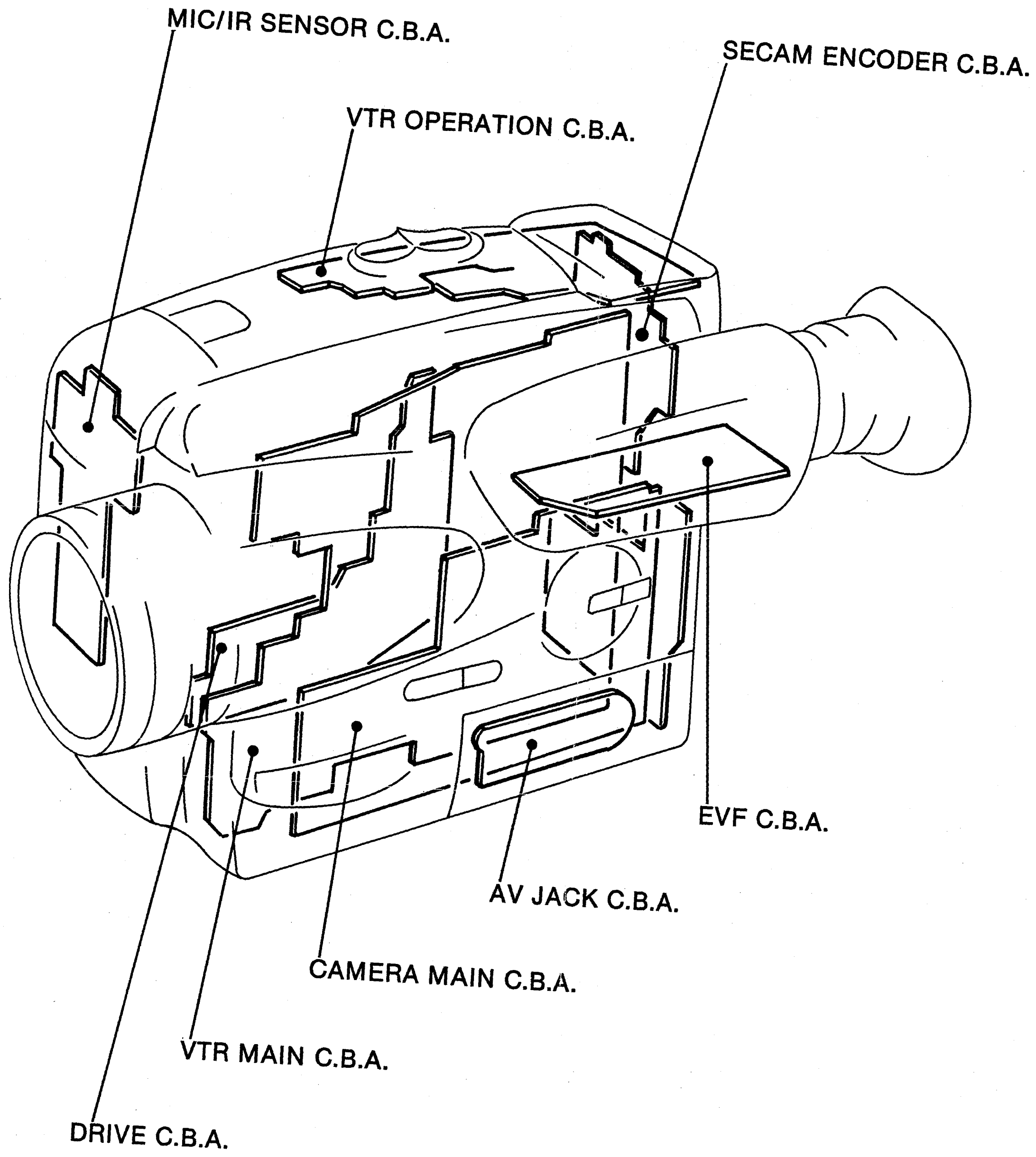

S6501
VMG0770
PLAY
FF
STOP
PAUSE
REW
CAM/VTR
D6501
MA141WK
D6502
MA141K
D6503
MA141WK
D6506
MA141K
TO SYSTEM CTL & SERVO
/Page:3 -49
B6501
WIDE 1
HI.SPEED 2
SCAND 3
TELE 4
GND 5
NC 6
NC 7
NC 8
VTR LED 9
CAM LED 10
KEY IN5 11
KEY IN6 12
KEY IN7 13
SCAN1 14
TO
B6003
(B-4)
S6502
VMG0712
HI.SPEED
TELE
S6503
VMG0712
WIDE
HI.SPEED
D6504
CAM.
POWER LED
CL150UR-T
D6505
VTR
POWER LED
CL150YG-T
B
A
1
2
3
4

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-32. VTR OPERATION C.B.A. (VEP06869A)


VJB06869
HI TELE
TELE
S6502
TELE
WIDE
HI WIDE
S6503
WIDE
D6506
D6501
D6503
D6502
B6501
1
14
7
8
STOP
STOP
FF
FF
PLAY
PLAY
CAM/VTR
D4
D6504
CAM POWER
C/V
D5
D6505
VTR POWER
REW
REW
PAUSE
PAUSE
S6501
C
B
A
1
2
3
4
5

3-33. CIRCUIT BOARD LAYOUT


MIC/IR SENSOR C.B.A.
SECAM ENCODER C.B.A.
VTR OPERATION C.B.A.
EVF C.B.A.
AV JACK C.B.A.
CAMERA MAIN C.B.A.
VTR MAIN C.B.A.
DRIVE C.B.A.

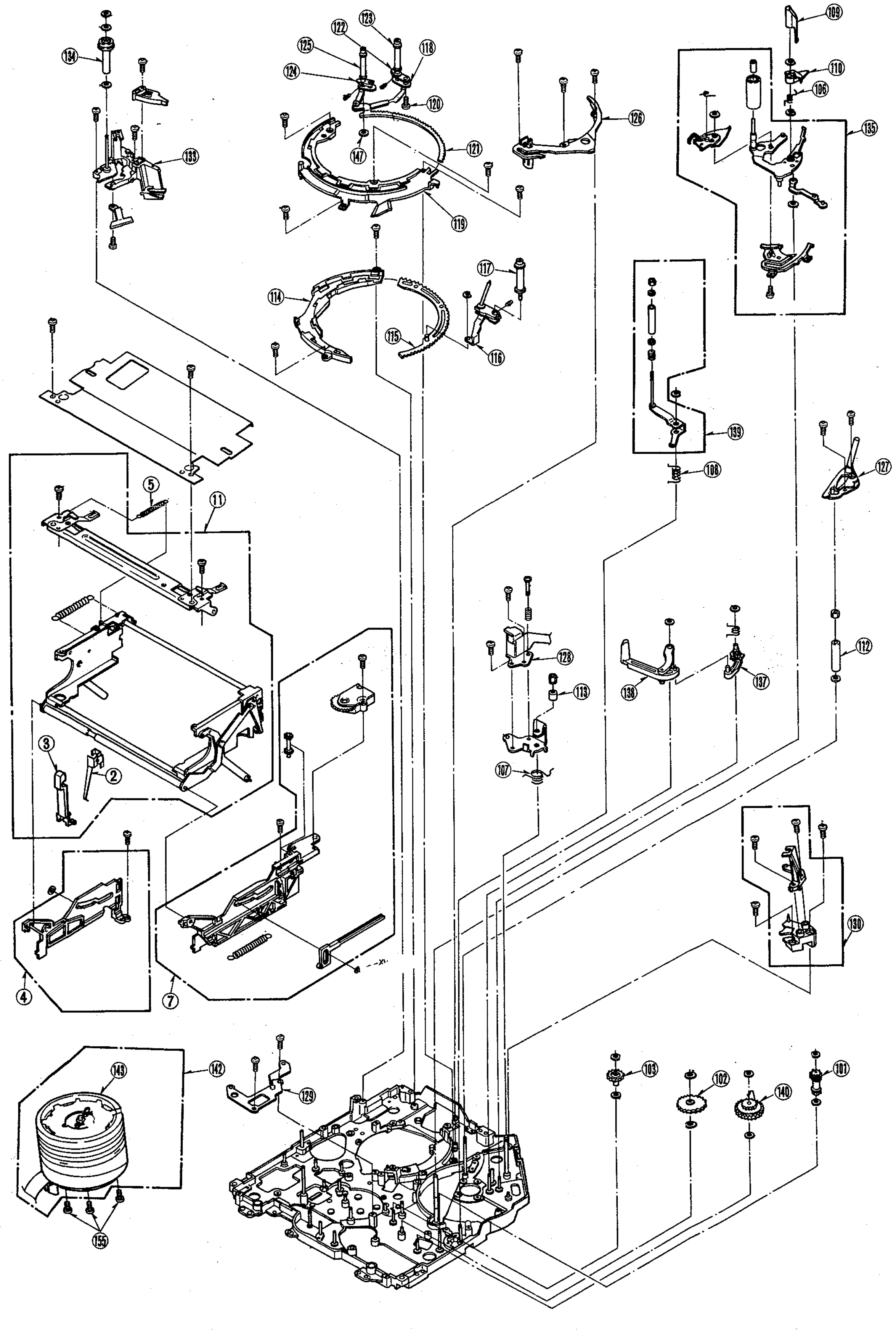
Back Page:
VTR OPERATION Section

Memo

SECTION 4
EXPLODED VIEWS & PARTS LIST

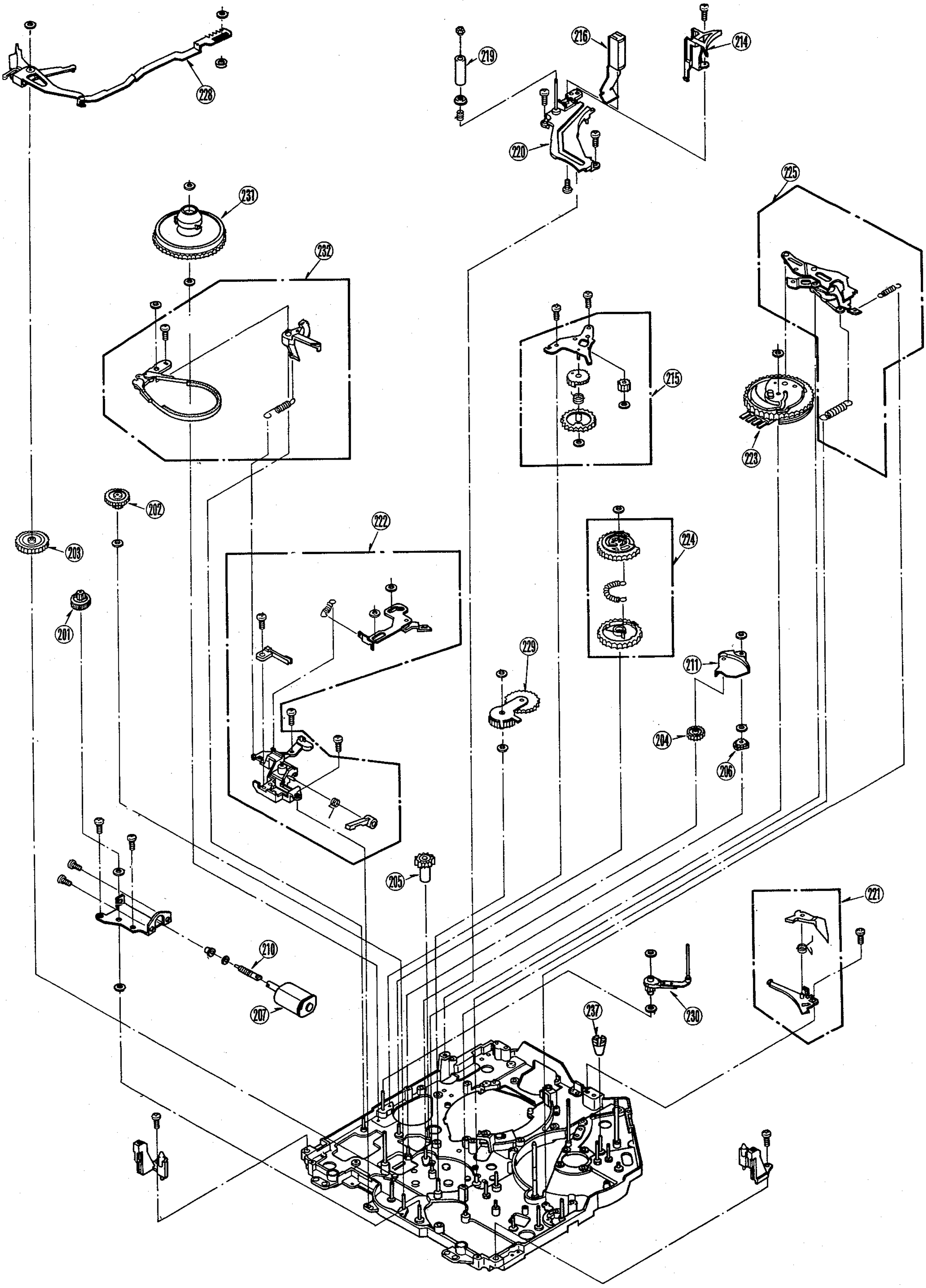
4-1. EXPLODED VIEWS

❶ VTR MECHANISM SECTION (1)



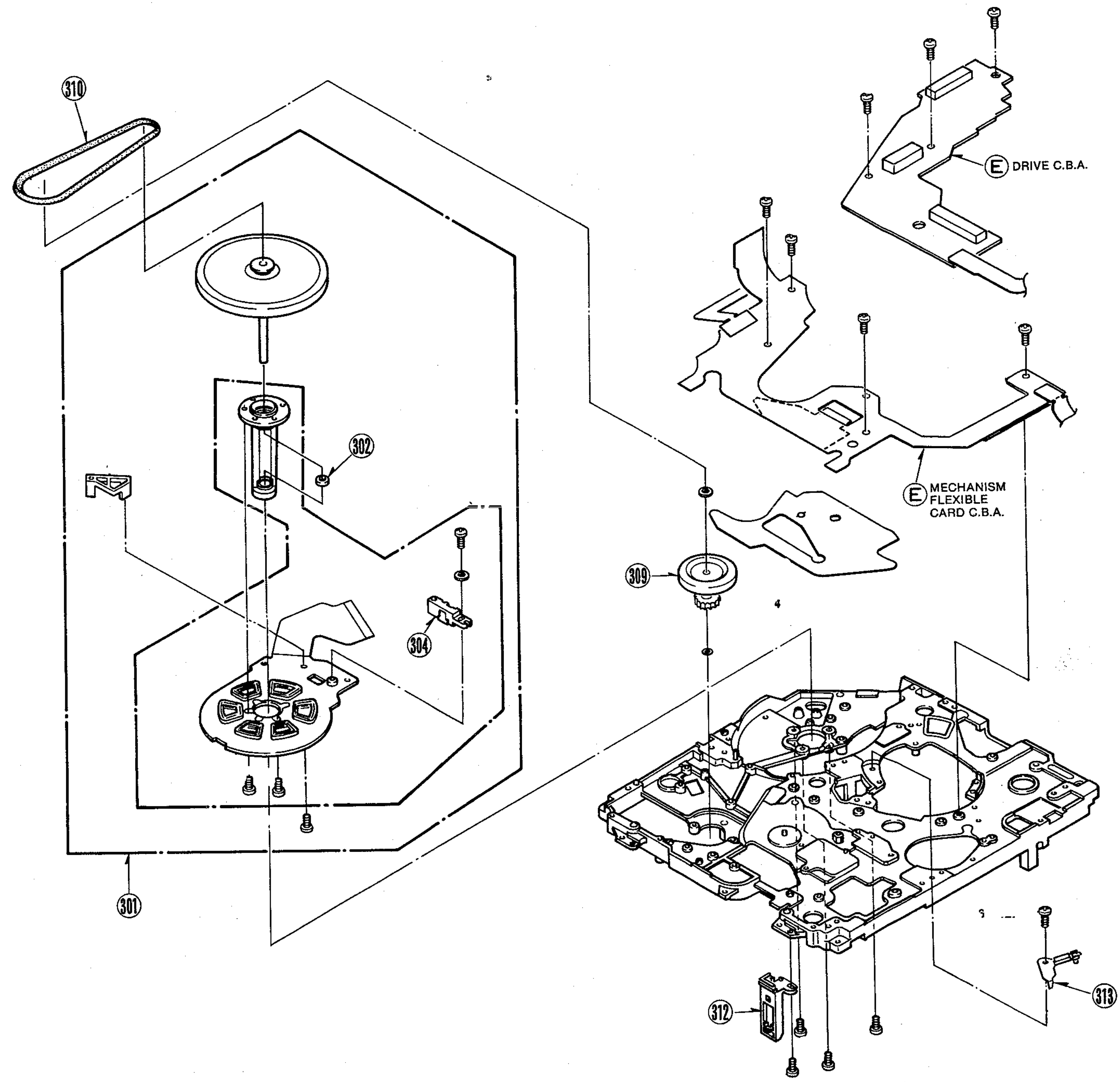
134
133
123
122
125
118
124
120
147
121
119
126
109
110
106
135
117
114
115
116
139
108
127
5
11
128
113
138
137
112
3
2
107
4
7
130
142
143
129
103
102
140
101
155

❷ VTR MECHANISM SECTION (2)

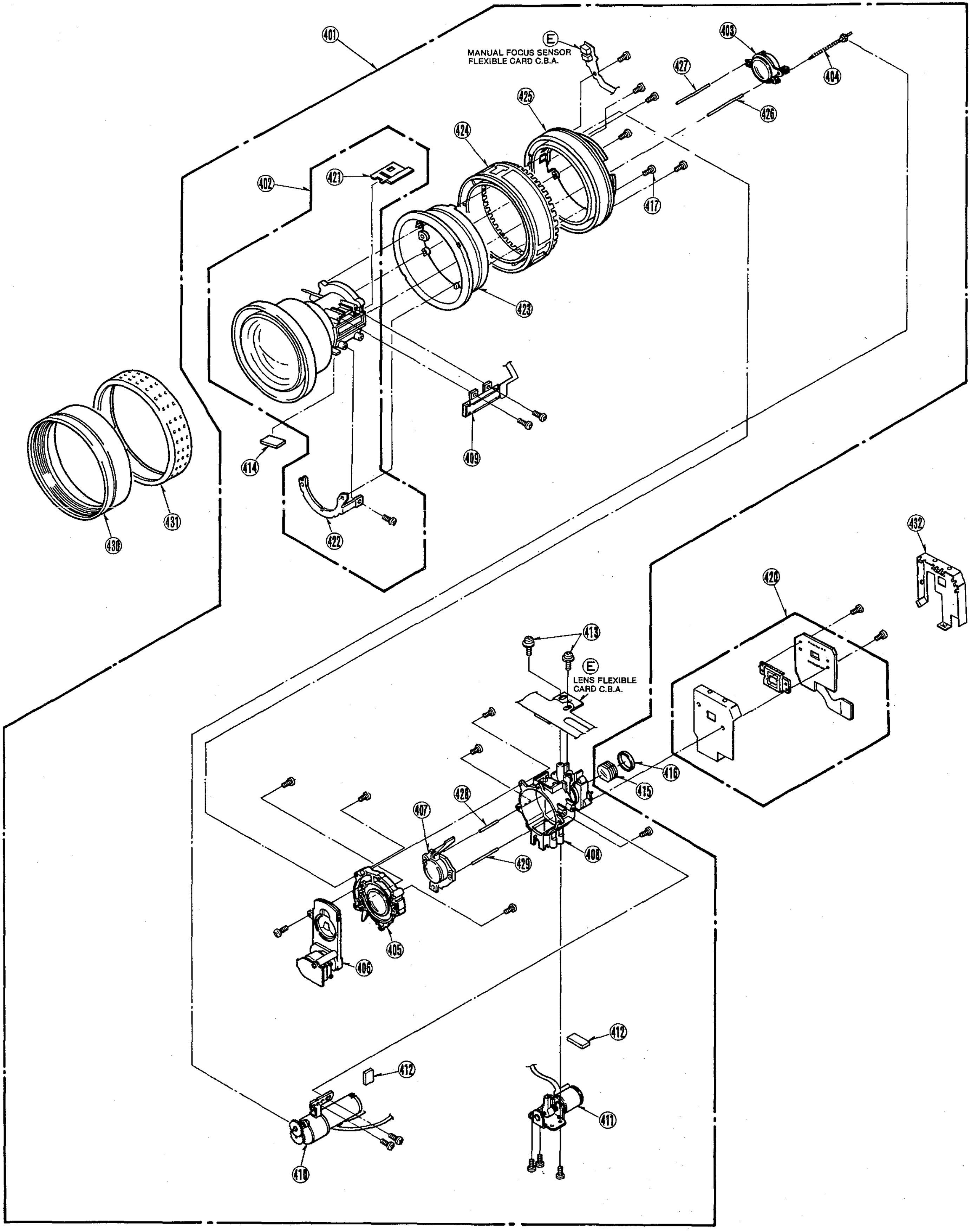


228
219
216
214
220
231
225
232
215
223
202
203
222
224
201
229
211
204
206
205
221
210
230
237
207

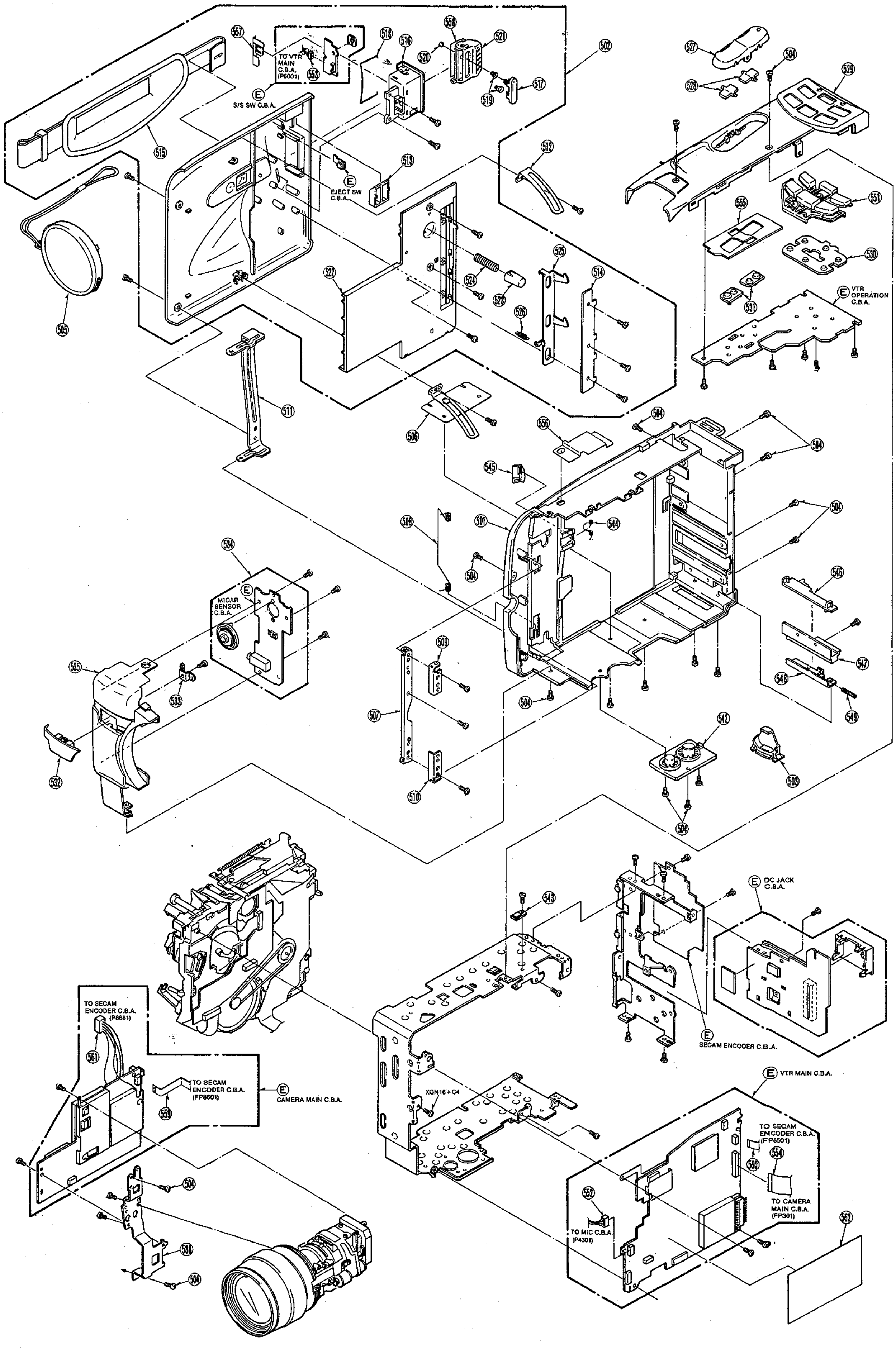
❸ VTR MECHANISM SECTION (3)


310
302
304
301
309
312
313
E DRIVE C.B.A.
E MECHANISM FLEXIBLE CARD C.B.A.

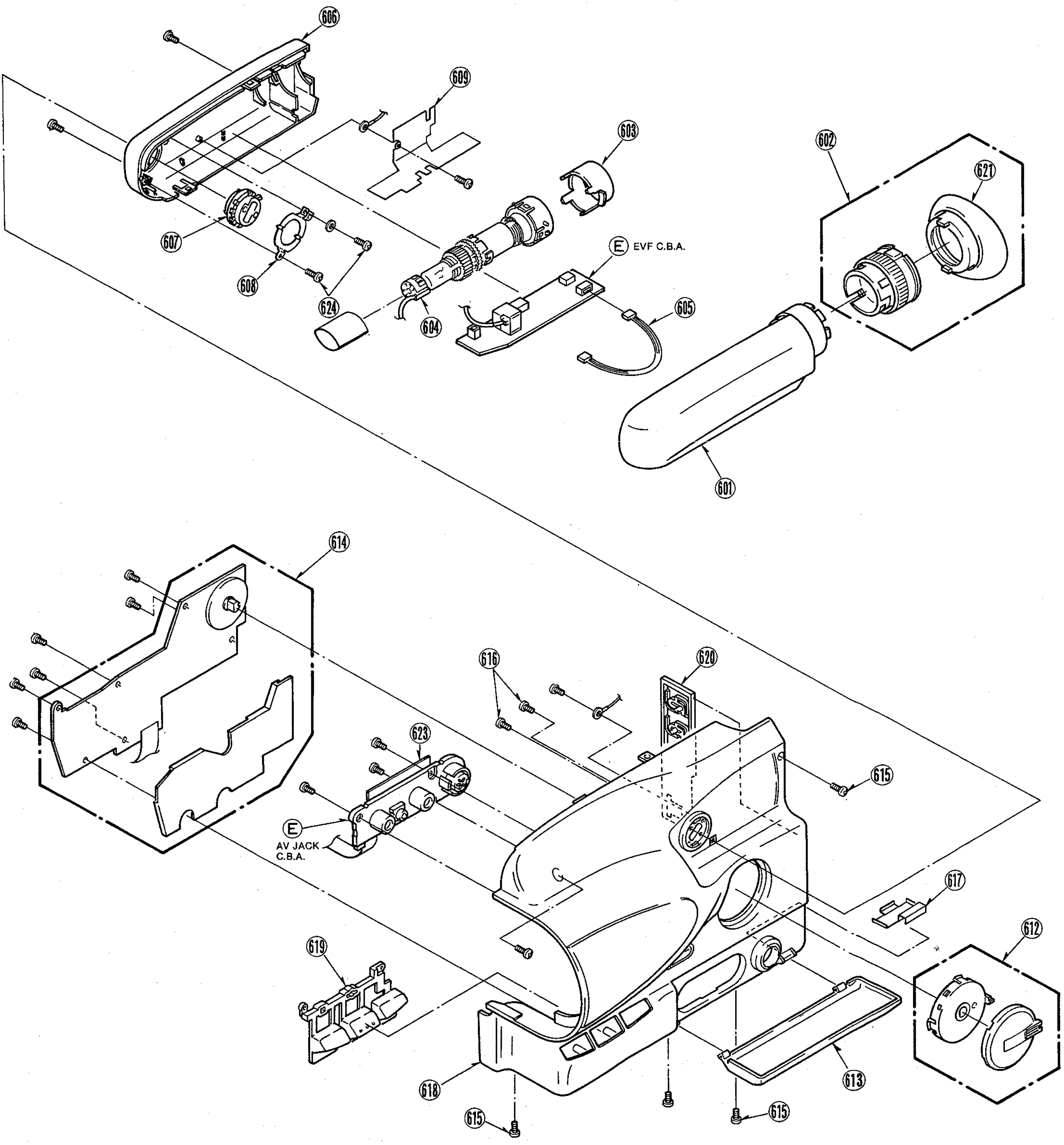
❹ CAMERA LENS SECTION


401
E
MANUAL FOCUS SENSOR
FLEXIBLE CARD C.B.A.
403
427
404
425
426
424
402
421
417
423
409
414
431
430
422
432
420
413
E
LENS FLEXIBLE
CARD C.B.A.
416
415
428
407
408
429
405
406
412
412
411
410

❺ FRAME & CASING PARTS SECTION (1)

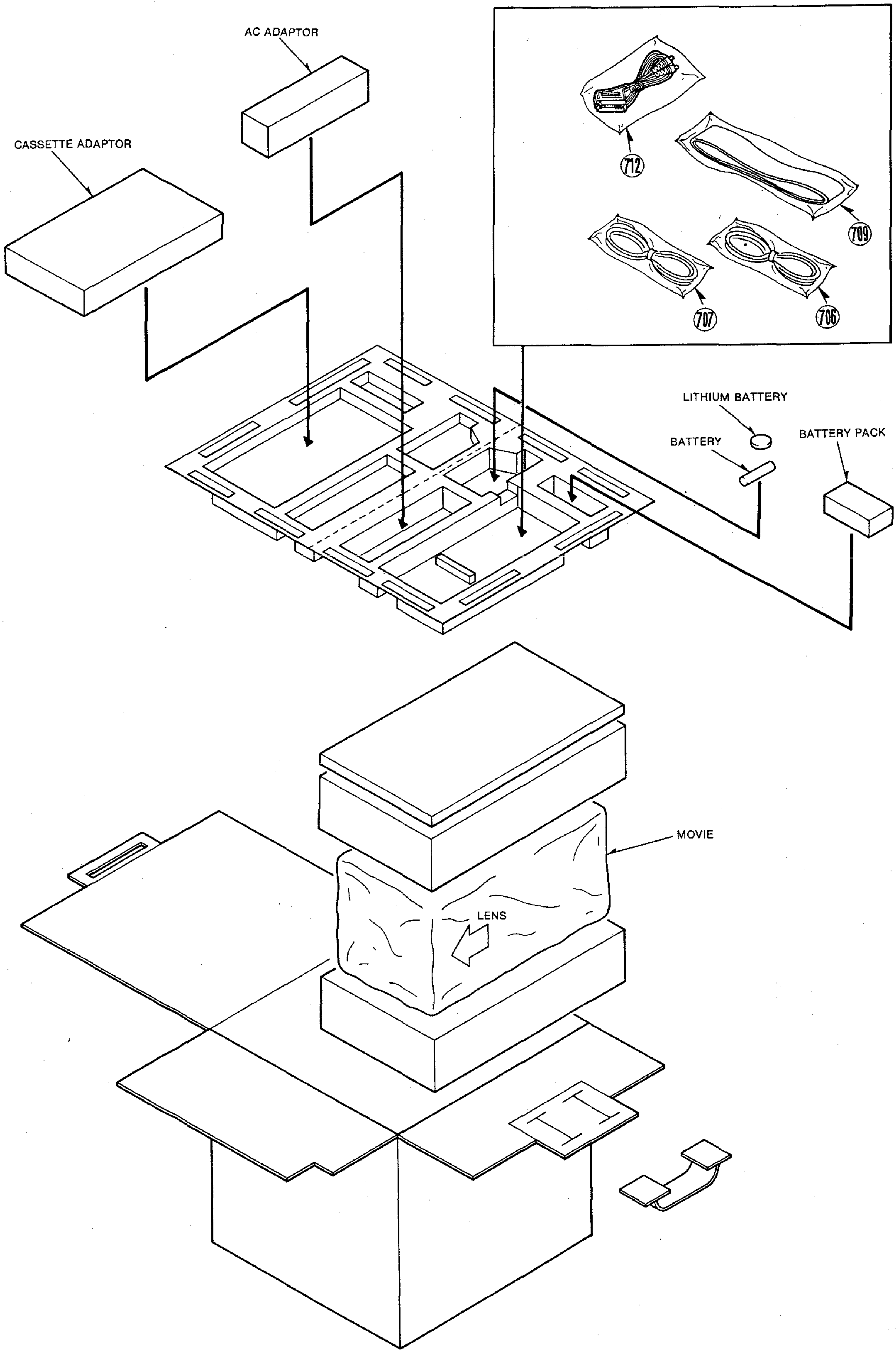

557
TO VTR MAIN C.B.A. (P6001)
553
E
S/S SW C.B.A.
518
516
520
550
521
519
517
502
515
E
EJECT SW C.B.A.
513
512
505
522
524
523
525
526
514
511
506
556
545
527
504
528
529
551
555
530
531
E
VTR OPERATION C.B.A.
504
504
504
508
501
544
504
534
MIC/IR SENSOR C.B.A.
E
535
533
532
509
507
510
504
546
547
548
549
542
503
504
543
E
DC JACK C.B.A.
E
SECAM ENCODER C.B.A.
E
VTR MAIN C.B.A.
TO SECAM ENCODER C.B.A. (P8681)
561
TO SECAM ENCODER C.B.A. (FP8601)
559
E
CAMERA MAIN C.B.A.
XQN16+C4
504
538
504
TO SECAM ENCODER C.B.A. (FP8501)
560
554
TO CAMERA MAIN C.B.A. (FP301)
552
TO MIC C.B.A. (P4301)
562

⑥ FRAME & CASING PARTS SECTION (2)



606
609
603
602
621
607
608
624
604
E EVF C.B.A.
605
601
614
616
620
623
615
E AV JACK C.B.A.
617
612
619
618
613
615
615

❼ PACKING PARTS & ACCESSORIES SECTION


AC ADAPTOR
CASSETTE ADAPTOR
⑫
⑨
⑦
⑥
LITHIUM BATTERY
BATTERY
BATTERY PACK
MOVIE
LENS

REPLACEMENT PARTSLIST M610

MECHANISM SECTION (1)

2(1)	4822 492 70961	LOCK LEVER (A) SPRING
3(1)	4822 403 70227	LOCK LEVER (A)
4(1)	4822 403 70469	STAND (L) UNIT
5(1)	4822 492 33226	HOLDER SPRING (L)
7(1)	4822 403 70473	STAND (R) UNIT
11(1)	4822 403 70472	CASSETTE HOLDER UNIT
101(1)	4822 522 32999	DRIVE GEAR (A)
102(1)	4822 522 33001	DRIVE GEAR (C)
103(1)	4822 522 33002	DRIVE GEAR (D)
106(1)	4822 492 42511	T (1) TURNER SPRING
107(1)	4822 492 42512	A/C BASE SPRING
108(1)	4822 492 42514	T5 ARM SPRING
109(1)	4822 403 70466	TAPE OPENER
110(1)	4822 403 70223	T1 RETURNER
112(1)	4822 528 81431	T4 POST
114(1)	4822 403 70217	S RACK GUIDE
115(1)	4822 403 70228	S RACK UNIT
116(1)	4822 403 70229	S SHAFT HOLDER (2) UNIT
117(1)	4822 528 81434	S2 ROLLER POST UNIT
118(1)	4822 403 70216	T1 SHAFT HOLDER PLATE
119(1)	4822 403 70218	T RACK GUIDE
120(1)	4822 462 71733	T1 SHAFT HOLDER PIN
121(1)	4822 522 33009	T RACK UNIT
122(1)	4822 403 70231	T SHAFT HOLDER (1) UNIT
123(1)	4822 528 81433	T ROLLER POST UNIT
124(1)	4822 403 70232	T2 SHAFT HOLER (2) UNIT
125(1)	4822 403 70242	ROLLER POST UNIT
126(1)	4822 403 70467	T RAIL (L) UNIT
127(1)	4822 403 70233	T RAIL (R) UNIT
128(1)	4822 249 10447	A/C HEAD (B) (1) UNIT
130(1)	4822 403 70225	T2 V STOPPER
133(1)	4822 403 70468	ST-V STOPPER (1) UNIT
134(1)	4822 528 90867	IMPEDANCE ROLLER UNIT
135(1)	4822 403 70241	PINCH ARM UNIT
137(1)	4822 403 70226	CORRECTOR (A)
138(1)	4822 403 70475	CORRECTOR (B) UNIT
139(1)	4822 403 70239	T5 ARM UNIT
140(1)	4822 522 33011	T CLUTCH GEAR UNIT
142(1)	4822 691 20759	CYLINDER UNIT
143(1)	4822 691 20761	UPPER CYLINDER UNIT

MECHANISM SECTION (2)

201(2)	4822 522 33003	LOADING GEAR (2)
202(2)	4822 522 33004	LOADING GEAR (3)
203(2)	4822 522 33005	LOADING GEAR (4)
204(2)	4822 522 33006	LOADING GEAR (5)
205(2)	4822 522 33007	LOADING GEAR (T1)
206(2)	4822 522 33118	ZENEBA GEAR
207(2)	4822 361 30331	LOADING MOTOR (2) UNIT
210(2)	4822 522 33012	WORM UNIT
211(2)	4822 403 70221	BAND GUIDE
214(2)	4822 462 71734	FE CAP
215(2)	4822 522 33013	LOADING GEAR S1 UNIT
216(2)	4822 249 40275	FE HEAD UNIT
219(2)	4822 532 61191	S4 SLEEVE
220(2)	4822 403 70471	S RAIL (1) UNIT
221(2)	4822 403 70245	T1 RAIL (M) UNIT
222(2)	4822 691 20633	LOCK BASE UNIT
223(2)	4822 522 33158	CAM GEAR UNIT
224(2)	4822 522 33015	LOADING GEAR T2 UNIT
225(2)	4822 403 70246	SECTOR GEAR UNIT
228(2)	4822 403 70247	CORRECTOR DRIVE ARM
229(2)	4822 522 33016	CENTER GEAR UNIT
230(2)	4822 403 70474	TENSION ARM UNIT
231(2)	4822 528 10827	S REEL TABLE UNIT
232(2)	4822 403 10302	TENSION REG. UNIT
237(2)	4822 505 11087	NUT

MECHANISM SECTION (3)

301(3)	4822 361 30363	CAPSTAN MOTOR U.
302(3)	4822 520 30532	LOWER BEARING
304(3)	4822 249 30184	MR HEAD
309(3)	4822 528 40332	PULLEY
310(3)	4822 358 31106	CAPSTAN BELT
312(3)	4822 271 30745	SAFETY SWITCH
313(3)	4822 466 82767	EARTH BRUSH

CAMERA LENS SECTION

401(4)	4822 381 20179	LENS U.
402(4)	4822 381 11379	LENS MAIN U.
403(4)	4822 464 50914	2ND MOVING FRAME U.
404(4)	4822 522 10459	SCREW SHAFT U.
405(4)	4822 381 11378	3RD FRAME LENS U.
406(4)	4822 403 70678	IRIS U.
407(4)	4822 464 50915	4TH MOVING FRAME U.
408(4)	4822 529 50233	MASTER FLANGE
409(4)	4822 691 20771	ZOOM ENCODER U.
410(4)	4822 361 21645	ZOOM MOTOR U.
411(4)	4822 361 21523	FOCUS MOTOR U.
412(4)	4822 466 62287	MOTOR CUSHION
413(4)	4822 502 21253	SCREW
414(4)	4822 466 40638	IRIS CUSHION
415(4)	4822 380 30315	CRYSTAL FILTER
416(4)	4822 466 62288	CCD CUSHION
417(4)	4822 502 21362	SCREW
420(4)	4822 691 20847	CCD U.
421(4)	4822 466 62299	SHADING PIECE
422(4)	4822 466 82981	HOLD PLATE
423(4)	4822 464 50946	FRONT FRAME
424(4)	4822 532 12228	FOCUS RING
425(4)	4822 464 50947	REAR FRAME
426(4)	4822 535 93363	ZOOM GUIDE POLE
427(4)	4822 535 93366	ZOOM GUIDE POLE (B)
428(4)	4822 535 93364	FOCUS GUIDE POLE (A)
429(4)	4822 535 93365	FOCUS GUIDE POLE (B)
430(4)	4822 532 61236	LENS HOOD
431(4)	4822 532 61235	MANUAL FOCUS RING RUBBER
432(4)	4822 466 62389	CCD SHIELD CASE (COVER)

FRAME AND CASING SECTION (1)

501(5)	4822 432 60812	SIDE CASE (L) 1 U.
502(5)	4822 432 60814	CASSETTE COVER U.
503(5)	4822 432 60703	BATTERY COVER
504(5)	4822 502 21254	SCREW
505(5)	4822 462 71948	HOOD CAP U.
506(5)	4822 403 70952	STAY SETTING ANGLE U.
507(5)	4822 403 70944	OPENNER ANGLE
508(5)	4822 492 33421	OPENNER SPRING
509(5)	4822 403 70945	SHAFT ANGLE (A)
510(5)	4822 403 70951	SHAFT ANGLE (B)
511(5)	4822 403 70943	CASSETTE COVER ANGLE
512(5)	4822 403 70946	CASSETTE COVER STAY (UPPER)
513(5)	4822 410 62689	LOCK RELEASE BUTTON
514(5)	4822 403 70948	CASSETTE LOCK ANGLE HOLDER
515(5)	4822 498 40594	GRIP BELT U.
516(5)	4822 256 92077	S/S BUTTON HOLDER
517(5)	4822 410 62688	S/S BUTTON
518(5)	4822 492 71379	S/S BUTTON COVER SPRING
519(5)	4822 492 71378	S/S BUTTON SPRING
520(5)	4822 462 71947	S/S BUTTON PIECE
521(5)	4822 432 60762	S/S BUTTON COVER
522(5)	4822 459 80768	CASSETTE COVER HOLDER
523(5)	4822 462 71946	CASSETTE DOWN PIECE
524(5)	4822 492 33406	CASS. DOWN PIECE SPRING
525(5)	4822 403 70949	CASSETTE LOCK ANGLE
526(5)	4822 492 33405	CASSETTE LOCK SPRING
527(5)	4822 410 62694	ZOOM BUTTON
528(5)	4822 466 82986	ZOOM BUTTON PIECE
529(5)	4822 432 60813	TOP CASE (1) U.
530(5)	4822 466 62388	RUBBER CONTACT SHEET
531(5)	4822 466 10623	RUBBER CONTACT
532(5)	4822 450 62086	AWB WINDOW
533(5)	4822 403 70947	FRONT FIXING ANGLE
534(5)	4822 242 30273	MIC UNIT
535(5)	4822 432 60765	FRONT CASE 1U.
536(5)	4822 432 60771	MIC NET U.
538(5)	4822 464 50971	LENS FRAME

540(5)	4822 464 50969	MAIN FRAME
541(5)	4822 464 50972	REAR FRAME U.
542(5)	4822 466 83019	TRIPOD BASE
543(5)	4822 403 70607	DEW SENSOR
544(5)	4822 492 32968	SAFETY SPRING
545(5)	4822 403 70251	SAFETY LEVER
546(5)	4822 403 70612	BATTERY LOCK
547(5)	4822 256 91924	BATTERY LOCK HOLDER
548(5)	4822 403 70619	BATTERY LOCK HOLDING ANGLE
549(5)	4822 492 33339	BATTERY LOCK SPRING
551(5)	4822 410 62924	VTR OPERATION BUTTON
552(5)	4822 265 31094	MIC CONNECTOR U.
553(5)	4822 265 31095	S/S CONNECTOR U.
554(5)	4822 466 10628	FLEXIBLE CARD
555(5)	4822 466 93254	ZOOM BUTTON SHEET
556(5)	4822 466 93255	STAY (UPPER) WIRE COVER
557(5)	4822 403 70942	S/S BUTTON SPACER
558(5)	4822 466 93253	S/S BUTTON SHEET
559(5)	4822 466 10639	SECAM ENC.FLEX. CARD
560(5)	4822 466 10638	SECAM FLEX.CARD (A)
561(5)	4822 321 62222	SYNC MIX CONNECTOR U.
562(5)	4822 466 62404	POW/SYS SHIELD BARRIER

FRAME AND CASING SECTION (2)

601(6)	4822 432 60768	EVF CASE (R)
602(6)	4822 462 71949	EYE CAP U.
603(6)	4822 466 62387	CRT PROTECTION PANEL
604(6)	4822 131 20478	ITC
605(6)	4822 321 62079	EVF CABLE U.
606(6)	4822 432 60764	EVF CASE (L)
607(6)	4822 520 30551	ROTATION PIECE
608(6)	4822 492 71382	ROTATION LOCK SPRING
612(6)	4822 413 41801	MODE SELECTION LEVER U.
613(6)	4822 432 60808	AV JACK DOOR
614(6)	4822 276 80436	CAMERA OPERATION U.
615(6)	4822 502 21254	SCREW
616(6)	4822 502 21288	SCREW
617(6)	4822 492 71381	DOOR LOCK SPRING
618(6)	4822 432 60811	SIDE CASE (R) 1U.
619(6)	4822 410 62923	CAMERA OPERATION BUTTON
620(6)	4822 410 62691	RESET MEMORY BUTTON
621(6)	4822 462 71877	EYE CAP
624(6)	4822 502 21363	SCREW

PACKING PARTS

705(7)	4822 736 53607	OPERATING INSTRUCTIONS
706(7)	4822 321 62082	AC CORD
707(7)	4822 321 61319	DC OUTPUT CABLE
709(7)	4822 498 40581	SHOULDER STRAP
710(7)	4822 600 70735	ACCESSORY BOX
712(7)	4822 321 60561	AV OUTPUT CABLE

JIGS & TOOLS (electrical)

4822 397 30186	VHS-C ALIGMENT TAPE	
4822 397 60152	COLOUR TEMP.CONV.FILTER	
4822 480 30347	COLOUR TEMP.CONV.FILTER	
4822 321 61054	EVR FIXTURE	
4822 209 52396	ROM 13	
4822 321 61621	EVR CONNECTION CABLE	5P
4822 321 61617	MEASUREMENT CABLE	24P
4822 321 61346	EXTENSITION CABLE	24P
4822 320 50234	EXTENSITION CABLE	18P
4822 321 62223	FLAT CABLE	7P
4822 321 62072	EXTENSITION CABLE	14P
4822 321 62073	EXTENSITION CABLE	3P
4822 321 62074	EXTENSITION CABLE	10P
4822 321 62075	FLAT CABLE	24P
4822 321 62076	EXTENSITION CABLE	5P
4822 321 62214	EXTENSITION CABLE	8P
4822 321 62215	EXTENSITION CABLE	10P

JIGS & TOOLS (mechanical)

4822 395 40055	RETAINING RING REMOVER
4822 395 50432	H-POSITION ADJUSTMENT
4822 395 90585	CHECK LIGHT
4822 395 50184	HEX WRENCH SET
4822 395 90256	HEAD CLEANING STICK

CAMERA MAIN C.B.A.

CONNECTORS

B201	4822 265 41355	CONNECTOR (12 PIN)
B302	4822 265 51368	CONNECTOR (24 PIN)
B303	4822 265 41329	CONNECTOR (10 PIN)

CAPACITORS

C201	4822 125 60178		
C203	4822 126 11764	12pF/	50V
C204	4822 126 11771	22pF/	50V
C205,06	4822 126 10687	1µF/	16V
C207	4822 126 11757	10pF/	50V
C208	4822 126 11769	18pF/	50V
C209	4822 126 11785	47pF/	50V
C210	4822 126 11761	1000pF/	50V
C211	4822 126 11748	0.1µF/	16V
C212	4822 124 11281	10µF/	6.3V
C213,14	4822 126 11774	27pF/	50V
C215	4822 126 11748	0.1µF/	16V
C216	4822 126 11761	1000pF/	50V
C218	4822 126 11748	0.1µF/	16V
C219	4822 124 11103	10µF/	10V
C220	4822 124 11237	3.3µF/	16V
C221	4822 126 10687	1µF/	16V
C223	4822 126 10687	1µF/	16V
C224	4822 124 11377	1.5µF/	
C226,27	4822 126 11748	0.1µF/	16V
C228	4822 124 11377	1.5µF/	
C229	4822 126 11748	0.1µF/	16V
C230,31	4822 126 11774	27pF/	50V
C232	4822 124 11376	4.7µF/	20V
C233	4822 126 11748	0.1µF/	16V
C234	4822 126 11761	1000pF/	50V
C235,36	4822 126 11774	27pF/	50V
C237	4822 126 11748	0.1µF/	16V
C238	4822 126 11761	1000pF/	50V
C239	4822 126 11777	33pF/	50V
C240	4822 126 12197	1.8µF/	16V
C241	4822 124 11233	22µF/	6.3V
C242	4822 126 11748	0.1µF/	16V
C243	4822 126 10687	1µF/	16V
C244-48	4822 126 11748	0.1µF/	16V
C249	4822 126 11751	0.047µF/	16V
C251	4822 124 11281	10µF/	6.3V
C252	4822 124 11144	22µF/	4V
C253	4822 126 10687	1µF/	16V
C254	4822 124 11145	10µF/	4V
C255,56	4822 126 11748	0.1µF/	16V
C257,58	4822 124 11281	10µF/	6.3V
C259	4822 126 10687	1µF/	16V
C260	4822 124 11376	4.7µF/	20V
C261	4822 126 11764	12pF/	50V
C269,70	4822 126 11788	56pF/	50V
C271	4822 126 11755	5pF/	50V
C272	4822 124 11237	3.3µF/	16V
C301	4822 122 33788	82pF/	50V
C302,03	4822 126 10687	1µF/	16V
C304	4822 124 11281	10µF/	6.3V
C305	4822 126 11761	1000pF/	50V
C306	4822 124 11281	10µF/	6.3V

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REPLACEMENT PARTSLIST M610

C307	4822 126 11748	0.1µF/	16V
C308	4822 122 33671	0.22µF/	16V
C310	4822 126 10687	1µF/	16V
C312	4822 126 11761	1000pF/	50V
C314-16	4822 124 11281	10µF/	6.3V
C317,18	4822 126 10687	1µF/	16V
C319	4822 126 11763	0.01µF/	50V
C320	4822 126 10687	1µF/	16V
C321-23	4822 126 11748	0.1µF/	16V
C328	4822 126 11748	0.1µF/	16V
C333	4822 122 33725	1µF/	16V
C334	4822 126 10687	1µF/	16V
C335	4822 124 11281	10µF/	6.3V
C336	4822 126 10687	1µF/	16V
C337-40	4822 126 11788	56pF/	50V
C344	4822 126 11788	56pF/	50V
C345	4822 126 11761	1000pF/	50V
C346-49	4822 126 11748	0.1µF/	16V
C350	4822 126 11763	0.01µF/	50V
C702	4822 124 23907	47µF/	4V
C703	4822 126 11768	150pF/	50V
C704	4822 124 11281	10µF/	6.3V
C705	4822 126 11265	0.068µF/	16V
C706-09	4822 126 11748	0.1µF/	16V
C710	4822 126 11751	0.047µF/	16V
C712	4822 126 11788	56pF/	50V
C713,14	4822 122 33671	0.22µF/	16V
C715	4822 124 11281	10µF/	6.3V
C716	4822 122 33671	0.22µF/	16V
C717	4822 122 33725	1µF/	16V
C718	4822 124 11281	10µF/	6.3V
C719	4822 124 11145	10µF/	4V
C720,21	4822 126 11761	1000pF/	50V
C722	4822 126 11748	0.1µF/	16V
C723	4822 126 11761	1000pF/	50V
C724	4822 126 11748	0.1µF/	16V
C726	4822 124 23593	47µF/	16V
C727	4822 126 11781	3300pF/	50V
C729-31	4822 126 11748	0.1µF/	16V
C732,33	4822 126 10687	1µF/	16V
C734	4822 122 33788	82pF/	50V
C736	4822 126 11748	0.1µF/	16V
C739,40	4822 126 11787	4700pF/	50V
C742	4822 126 11748	0.1µF/	16V
C744	4822 126 10687	1µF/	16V

DIODES

D201-04	4822 130 80727	MA110
D205	4822 130 80732	MA728
D206	4822 130 80727	MA110
D208-10	4822 130 80727	MA110
D301	4822 130 82443	MA132WA
D302	4822 130 82444	MA132WK
D304	4822 130 80727	MA110
D701	4822 130 80727	MA110

FILTERS

FL201	4822 242 81376	EIK4EW006
FL301	4822 242 81595	ELB4D548

CONNECTORS

FP301	4822 267 60359	CONNECTOR(24 PIN)
FP304	4822 267 51299	CONNECTOR(08 PIN)
FP701	4822 267 60369	CONNECTOR(24 PIN)

INTEGRATED CIRCUITS

IC201	4822 209 32454	MN5188
IC202	4822 209 32453	MB87836PFV
IC203	4822 209 32451	CXA1439M
IC204	4822 209 31743	AN2033FAP
IC301	4822 209 32452	CXD2300Q
IC302	4822 209 32456	MN67322
IC305	4822 209 32455	MN65702H
IC308	4822 209 32801	T90CK78F3409
IC309	4822 209 63541	MN73512XWAS
IC310	4822 209 30351	M62352GP
IC311	4822 209 31389	AK6420F
IC702	4822 209 32457	MN6782VMDR
IC703	4822 209 63518	AN2585FAP
IC704	4822 209 63528	LM358DB
IC705	4822 209 63526	LM324DB
IC706	4822 209 31394	AN6663S
IC707	4822 209 31306	TB6504F
IC708	4822 209 31762	XC62AP5002PR
IC709	4822 209 63557	TC7S08F

COILS

L203,04	4822 157 70238	coil 15µH
L205	4822 157 70256	coil
L206	4822 157 70623	coil 2.2µH
L207	4822 157 70624	coil 68µH
L208	4822 157 70256	coil
L209	4822 157 70238	coil 15µH
L210	4822 157 70256	coil
L212	4822 157 70625	coil 82µH
L213,14	4822 157 70238	coil 15µH
L216,17	4822 157 70238	coil 15µH
L218	4822 157 70254	coil
L220	4822 157 70254	coil
L222	4822 157 63923	coil
L224	4822 157 70257	coil
L301-04	4822 157 70622	coil 6.8µH
L305	4822 157 70254	coil
L306	4822 157 70622	coil 6.8µH
L308	4822 157 70254	coil
L309	4822 157 70622	coil 6.8µH
L314	4822 157 70254	coil
L315	4822 157 70621	coil 22µH
L316	4822 157 63961	coil 39µH
L317	4822 157 70622	coil 6.8µH
L323	4822 157 63961	coil 39µH
L324-26	4822 157 70622	coil 6.8µH
L327	4822 157 70254	coil
L702	4822 157 63467	coil 100µH
L703	4822 157 70238	coil 15µH
L704	4822 157 63468	coil 15µH

TRANSISTORS

Q201	4822 130 63052	XP4654
Q202	4822 130 62586	2SD2216
Q203,04	4822 130 63052	XP4654
Q206	4822 130 62579	2SB1462
Q207	4822 130 62586	2SD2216
Q208	4822 130 62576	XP4501
Q209	4822 130 62586	2SD2216
Q210	4822 130 62577	XP4601
Q211	4822 130 62586	2SD2216
Q301	4822 130 62582	2SC4627
Q303	4822 130 62579	2SB1462
Q701	4822 130 62586	2SD2216
Q702	4822 130 62585	2SD2210
Q703	4822 130 61076	2SB1219
Q704	4822 130 60875	2SK620
Q705	4822 130 62576	XP4501

TRANSISTOR RESISTORS

QR301	4822 130 63333	MRN1103
QR701	4822 130 63332	MRN1102
QR702	4822 130 62832	UN921E
QR703	4822 130 62564	UN9212

⚠......Safety component, use only this type

REPLACEMENT PARTSLIST M610

RESISTORS

R201	4822 116 83809	1MΩ	1/32W
R202	4822 116 81107	820Ω	1/16W
R203	4822 116 81047	10KΩ	1/16W
R204	4822 116 81089	470Ω	1/16W
R205	4822 116 81045	100Ω	1/16W
R207	4822 116 83845	680Ω	1/32W
R210	4822 116 83805	1KΩ	1/32W
R211	4822 116 81107	820Ω	1/16W
R213	4822 116 81045	100Ω	1/16W
R214	4822 116 81051	120Ω	1/16W
R215	4822 116 81072	27Ω	1/16W
R216	4822 116 81045	100Ω	1/16W
R219	4822 116 83845	680Ω	1/32W
R220,21	4822 116 83832	33KΩ	1/32W
R223	4822 100 12023		
R224	4822 117 10137		
R225	4822 116 81045	100Ω	1/16W
R226	4822 116 83845	680Ω	1/32W
R228	4822 116 81045	100Ω	1/16W
R229	4822 116 83845	680Ω	1/32W
R231	4822 116 83832	33KΩ	1/32W
R232	4822 116 83819	18KΩ	1/32W
R233	4822 116 81047	10KΩ	1/16W
R234	4822 116 83846	6.8KΩ	1/32W
R235	4822 116 83809	1MΩ	1/32W
R236	4822 116 81067	220Ω	1/16W
R238	4822 116 81046	1KΩ	1/16W
R240	4822 116 83851	8.2KΩ	1/32W
R241	4822 116 83827	2.7KΩ	1/32W
R242	4822 116 83811	1.2KΩ	1/32W
R243	4822 116 81047	10KΩ	1/16W
R244	4822 116 83806	1KΩ	1/32W
R248	4822 116 81046	1KΩ	1/16W
R249	4822 116 83811	1.2KΩ	1/32W
R251	4822 116 83848	680KΩ	1/32W
R254	4822 116 83843	5.6KΩ	1/32W
R255	4822 116 83815	1.5KΩ	1/32W
R256	4822 116 83834	3.9KΩ	1/32W
R257	4822 116 81046	1KΩ	1/16W
R258	4822 116 83843	5.6KΩ	1/32W
R259	4822 116 83818	1.8KΩ	1/32W
R260	4822 116 83852	82KΩ	1/32W
R261	4822 116 83821	180KΩ	1/32W
R262	4822 116 81046	1KΩ	1/16W
R263	4822 116 83809	1MΩ	1/32W
R264	4822 116 81051	120Ω	1/16W
R265,66	4822 116 81088	47Ω	1/16W
R267	4822 116 81051	120Ω	1/16W
R268,69	4822 116 81088	47Ω	1/16W
R271	4822 117 10126	0Ω	1/32W
R276	4822 116 81046	1KΩ	1/16W
R277	4822 116 83818	1.8KΩ	1/32W
R278,79	4822 116 81045	100Ω	1/16W
R280	4822 116 81091	4.7KΩ	1/16W
R281	4822 116 81089	470Ω	1/16W
R290	4822 116 83849	820Ω	1/32W
R291	4822 116 83834	3.9KΩ	1/32W
R292	4822 051 20152	1.5KΩ	1/10W
R293	4822 051 20122	1.2KΩ	1/10W
R294	4822 116 81046	1KΩ	1/16W
R301	4822 116 81067	220Ω	1/16W
R302,03	4822 116 83824	22KΩ	1/32W
R304	4822 116 81046	1KΩ	1/16W
R305	4822 116 83806	1KΩ	1/32W
R306	4822 116 81046	1KΩ	1/16W
R308	4822 116 83843	5.6KΩ	1/32W
R309	4822 116 83824	22KΩ	1/32W
R310	4822 116 83819	18KΩ	1/32W
R311	4822 116 81047	10KΩ	1/16W
R312,13	4822 116 83824	22KΩ	1/32W
R314	4822 116 81091	4.7KΩ	1/16W
R316	4822 117 10126	0Ω	1/32W
R317-20	4822 116 81092	47KΩ	1/16W
R321,22	4822 116 81047	10KΩ	1/16W
R326	4822 116 81091	4.7KΩ	1/16W
R328	4822 116 83808	100KΩ	1/32W
R330	4822 116 81047	10KΩ	1/16W
R331-33	4822 116 81091	4.7KΩ	1/16W
R334	4822 116 83828	27KΩ	1/32W
R336,37	4822 116 81045	100Ω	1/16W
R338	4822 116 81046	1KΩ	1/16W
R339	4822 116 81045	100Ω	1/16W
R340	4822 116 83845	680Ω	1/32W
R342	4822 116 81092	47KΩ	1/16W
R343	4822 116 83844	56KΩ	1/32W
R344	4822 116 83806	1KΩ	1/32W
R345	4822 116 83823	2.2KΩ	1/32W
R346	4822 116 83806	1KΩ	1/32W
R347,48	4822 116 83823	2.2KΩ	1/32W
R349	4822 116 83806	1KΩ	1/32W
R350	4822 116 83815	1.5KΩ	1/32W
R353	4822 117 10126	0Ω	1/32W
R359	4822 116 81112	0Ω	1/16W
R360	4822 116 83824	22KΩ	1/32W
R361	4822 116 81046	1KΩ	1/16W
R701	4822 116 81089	470Ω	1/16W
R702	4822 116 83806	1KΩ	1/32W
R703	4822 116 81055	150Ω	1/16W
R704,05	4822 116 81091	4.7KΩ	1/16W
R706,07	4822 116 81092	47KΩ	1/16W
R708	4822 116 81091	4.7KΩ	1/16W
R709	4822 116 83818	1.8KΩ	1/32W
R710	4822 116 81047	10KΩ	1/16W
R711	4822 116 82791	10KΩ	1/16W
R712	4822 116 82839	30KΩ	1/16W
R713	4822 116 83813	120KΩ	1/32W
R714	4822 116 83824	22KΩ	1/32W
R715	4822 116 83852	82KΩ	1/32W
R716	4822 116 83833	330KΩ	1/32W
R717,18	4822 116 83807	10KΩ	1/32W
R719	4822 116 83817	150KΩ	1/32W
R720	4822 116 81091	4.7KΩ	1/16W
R721	4822 116 83826	2.2MΩ	1/32W
R722	4822 116 83815	1.5KΩ	1/32W
R723	4822 116 83823	2.2KΩ	1/32W
R724	4822 116 83839	47KΩ	1/32W
R725	4822 116 81091	4.7KΩ	1/16W
R726	4822 116 81046	1KΩ	1/16W
R727	4822 116 83812	12KΩ	1/32W
R728	4822 116 81046	1KΩ	1/16W
R729	4822 116 83812	12KΩ	1/32W
R730	4822 116 81092	47KΩ	1/16W
R731	4822 116 81061	180Ω	1/16W
R732	4822 116 83834	3.9KΩ	1/32W
R733,34	4822 051 30338	3.3Ω	1/16W
R735	4822 116 83835	39KΩ	1/32W
R736	4822 116 83852	82KΩ	1/32W
R737	4822 116 81047	10KΩ	1/16W
R738	4822 116 83809	1MΩ	1/32W
R739	4822 116 81067	220Ω	1/16W
R740	4822 116 83816	15KΩ	1/32W
R741,42	4822 116 81092	47KΩ	1/16W
R743	4822 116 83824	22KΩ	1/32W
R744	4822 116 81068	2.2KΩ	1/16W
R745	4822 116 83849	820Ω	1/32W
R746	4822 116 83824	22KΩ	1/32W
R747,48	4822 117 10126	0Ω	1/32W
R750	4822 116 83828	27KΩ	1/32W
R751	4822 116 81046	1KΩ	1/16W
R752	4822 116 83808	100KΩ	1/32W
R753	4822 116 83824	22KΩ	1/32W
R755	4822 116 81047	10KΩ	1/16W
R756	4822 116 83843	5.6KΩ	1/32W
R757	4822 116 81047	10KΩ	1/16W
R758	4822 116 83846	6.8KΩ	1/32W
R760	4822 116 83844	.56KΩ	1/32W
R761	4822 116 83265	1.2KΩ	1/16W

⚠......Safety component, use only this type

R762	4822 100 12087		
R763	4822 116 83808	100KΩ	1/32W
R764	4822 116 81092	47KΩ	1/16W
R765	4822 100 12089		
R766	4822 116 83824	22KΩ	1/32W
R767	4822 116 81067	220Ω	1/16W
R768	4822 100 12024		
R770	4822 116 83823	2.2KΩ	1/32W
R774	4822 116 83808	100KΩ	1/32W

RESISTORS ARRAYS

RA301,02	4822 111 92148
RA303-06	4822 111 92097
RA307	4822 111 92149
RA308,09	4822 111 92097
RA310	4822 111 92147

VARIABLE RESISTORS

VR201	4822 100 30083	200KΩ
VR701	4822 100 30085	50KΩ
VR702	4822 100 30093	

CRYSTALS

X201	4822 242 81506	CRYSTAL OSCILLATOR
X301	4822 242 80349	CRYSTAL OSCILLATOR
X701	4822 242 81225	CRYSTAL OSCILLATOR
X702	4822 242 80349	CRYSTAL OSCILLATOR

MISCELLANEOUS

4822 321 62222	CABLE UNIT

CCD FLEXIBEL CARD C.B.A.

CONNECTORS

B291	4822 267 51183	CONNECTOR (12 PIN)

CAPACITORS

C292	4822 124 11329	2.2µF/	35V
C295	4822 122 33731	0.1µF/	25V
C293-94	4822 122 33672	0.047µF/	25V

DIODES

D291	4822 130 32868	MA153

TRANSISTORS

Q291	4822 130 61593	2SC2295

RESISTORS

R291	4822 051 20569	56Ω	1/10W
R292	4822 051 20472	4.7KΩ	1/10W

LENS FLEXIBLE CARD C.B.A.

MISCELLANEOUS

4822 130 83405	Photo sensor

FLEXIBLE CARD C.B.A

MISCELLANEOUS

4822 130 83009	PHOTO INTERUPTER

E.V.F. C.B.A.

CAPACITORS

C801	4822 121 70329	0.1µF/	16V
C802	4822 124 23588	100µF/	6.3V
C804	4822 126 10687	1µF/	16V
C805	4822 124 23899	220µF/	6.3V
C806	4822 122 33902	0.012µF/	25V
C807	4822 126 12472	1µF/	16V
C808	4822 126 10687	1µF/	16V
C809	4822 124 80167	47µF/	16V
C810	4822 126 11273	2900pF/	100V
C811	4822 124 11291	47µF/	10V
C812	4822 126 11771	22pF/	50V
C813	4822 126 11802	330pF/	500V
C814	4822 124 23597	1µF/	50V
C815	4822 126 11802	330pF/	500V
C816	4822 122 33749	0.1µF/	50V
C818	4822 126 11802	330pF/	500V
C831	4822 122 33749	0.1µF/	50V

DIODES

D801	4822 130 80729	MA141A
D802	4822 130 82019	SFPL-52

INTEGRATED CIRCUITS

IC801	4822 209 31314	AN2515S

COILS

L801	4822 157 62968	coil 47µH
L802	4822 157 70619	coil
L803	4822 157 62968	coil 47µH
L804	4822 157 63692	coil

CONNECTORS

P801	4822 265 31027	CONNECTOR (MALE)	
P802	4822 265 31146	CONNECTOR (MALE)	
P803	4822 265 31026	CONNECTOR (MALE)	
P804	4822 265 30428	CONNECTOR (MALE)	2P

TRANSISTORS

Q802	4822 130 61087	2SD968A-S
Q803,04	4822 130 63342	2SA1748

REPLACEMENT PARTSLIST M610

RESISTORS

R801	4822 116 82628		
R802	4822 051 20398	3.9Ω	1/10W
R805	4822 116 81046	1KΩ	1/16W
R808	4822 116 81756	2.4KΩ	1/16W
R809	4822 116 81098	560KΩ	1/16W
R810	4822 116 83724	10KΩ	1/10W
R814	4822 116 81068	2.2KΩ	1/16W
R815	4822 116 81046	1KΩ	1/16W
R816	4822 116 81091	4.7KΩ	1/16W
R817	4822 116 81096	5.6KΩ	1/16W
R818	4822 116 81081	33KΩ	1/16W
R819,20	4822 051 20275	2.7MΩ	1/10W
R821	4822 116 82349	1MΩ	1/10W
R823	4822 051 30398	3.9Ω	1/16W
R829	4822 116 83725		
R832	4822 116 81049	1MΩ	1/16W
R834	4822 116 81089	470Ω	1/16W
R835	4822 116 81081	33KΩ	1/16W
R840	4822 051 10685	6.8MΩ	1/8W
R841,42	4822 051 20475	4.7MΩ	1/10W
R843	4822 116 81098	560KΩ	1/16W

TRANSFORMERS

T801	⚠	4822 148 81264	TRANSFORMER

VARIABLE RESISTORS

VR801	4822 100 30091
VR803	4822 101 30787
VR804	4822 101 30786

MISCELLANEOUS

⚠	4822 255 70269	CRT SOCKET UNIT

MAIN C.B.A.

CONNECTORS

B1001	4822 265 41286	CONNECTOR (16 PIN)
B4003	4822 265 41331	CONNECTOR (10 PIN)
B6001	4822 267 60371	CONNECTOR (24 PIN)
B6002	4822 265 41278	CONNECTOR (16 PIN)
B6003	4822 265 41332	CONNECTOR (14 PIN)

CAPACITORS

C1001	4822 126 12198	3.3μF/	16V
C1002	4822 124 23593	47μF/	16V
C1003	4822 126 12172		
C1004	4822 126 11779	330pF/	50V
C1005	4822 124 11237	3.3μF/	16V
C1006	4822 126 10687	1μF/	16V
C1008	4822 126 12172		
C1009	4822 126 11779	330pF/	50V
C1010	4822 124 11237	3.3μF/	16V
C1011	4822 126 10687	1μF/	16V
C1012	4822 126 11761	1000pF/	50V
C1013	4822 126 12194		
C1014	4822 126 11789	560pF/	50V
C1015	4822 124 23593	47μF/	16V
C1016	4822 126 11787	4700pF/	50V
C1017	4822 126 12473	1μF/	25V
C1018	4822 124 23593	47μF/	16V
C1019	4822 126 12474	0.47μF/	25V
C1020,21	4822 126 10687	1μF/	16V
C1022	4822 122 33749	0.1μF/	50V
C1023	4822 126 10687	1μF/	16V
C1024	4822 126 12199	0.47μF/	16V
C1025	4822 126 11257	0.1μF/	16V
C1026	4822 124 10759	1μF/	16V
C1027	4822 126 11759	100pF/	50V
C1028	4822 124 11378	0.47μF/	25V
C1029	4822 126 11786	470pF/	50V
C1030	4822 126 12218	8200pF/	50V
C1031	4822 126 11786	470pF/	50V
C1032	4822 126 12218	8200pF/	50V
C1033-35	4822 126 11761	1000pF/	50V
C1036	4822 126 11786	470pF/	50V
C1037	4822 126 12218	8200pF/	50V
C1038	4822 124 11237	3.3μF/	16V
C1039	4822 126 10687	1μF/	16V
C1040	4822 124 23603	330μF/	10V
C1043	4822 126 11761	1000pF/	50V
C1044	4822 124 80599	33μF/	4V
C1046	4822 126 10687	1μF/	16V
C3002	4822 124 23585	47μF/	4V
C3003	4822 124 23244	2.2μF/	50V
C3004	4822 126 11769	18pF/	50V
C3005	4822 126 11763	0.01μF/	50V
C3006	4822 126 12204	0.039μF/	25V
C3007	4822 126 11777	33pF/	50V
C3010	4822 126 11785	47pF/	50V
C3011	4822 126 10687	1μF/	16V
C3012	4822 126 11748	0.1μF/	16V
C3013	4822 126 10687	1μF/	16V
C3014	4822 126 11763	0.01μF/	50V
C3015	4822 124 11281	10μF/	6.3V
C3016	4822 126 11782	39pF/	50V
C3017	4822 126 11772	220pF/	50V
C3018	4822 126 11792	68pF/	50V
C3019	4822 126 11772	220pF/	50V
C3020	4822 122 33788	82pF/	50V
C3021	4822 126 11763	0.01μF/	50V
C3022	4822 126 11782	39pF/	50V
C3023	4822 126 11792	68pF/	50V
C3024	4822 126 11772	220pF/	50V
C3027	4822 126 11771	22pF/	50V
C3028	4822 124 80162	470μF/	4V
C3030	4822 124 11281	10μF/	6.3V
C3031	4822 126 11763	0.01μF/	50V
C3032	4822 126 11782	39pF/	50V
C3033	4822 124 11281	10μF/	6.3V
C3034	4822 126 11763	0.01μF/	50V
C3035	4822 126 10687	1μF/	16V
C3036	4822 126 11773	2200pF/	50V
C3037	4822 124 10759	1μF/	16V
C3038	4822 126 11759	100pF/	50V
C3040	4822 126 11763	0.01μF/	50V
C3043	4822 126 11782	39pF/	50V
C3047	4822 126 11763	0.01μF/	50V
C4001	4822 126 11766	1200pF/	50V
C4003	4822 124 11238	0.33μF/	35V
C4004	4822 126 11768	150pF/	50V
C4005	4822 124 23242	10μF/	16V
C4006	4822 122 33128	0.015μF/	50V
C4007	4822 124 23907	47μF/	4V
C4008,09	4822 122 33725	1μF/	16V
C4010	4822 124 11144	22μF/	4V
C4011	4822 124 11233	22μF/	6.3V
C4012	4822 124 11144	22μF/	4V
C4013	4822 122 33725	1μF/	16V
C4015	4822 122 33902	0.012μF/	50V
C4016	4822 126 11772	220pF/	50V
C4017	4822 126 11748	0.1μF/	16V
C4018	4822 124 23242	10μF/	16V
C4019	4822 124 23907	47μF/	4V
C4020,21	4822 126 11761	1000pF/	50V
C4022	4822 126 11773	2200pF/	50V
C4023	4822 122 33725	1μF/	16V
C4024	4822 124 23588	100μF/	6.3V

⚠......Safety component, use only this type

C4025	5322 122 32654	0.022µF/	50V
C4026	4822 126 10694	0.01µF/	50V
C4027	4822 126 11795	820pF/	50V
C4028	4822 126 10697	0.018µF/	50V
C4029	5322 122 32654	0.022µF/	50V
C4031	4822 126 11791	5600pF/	50V
C4035	4822 126 11761	1000pF/	50V
C4036	4822 126 11781	3300pF/	50V
C4038	4822 126 11786	470pF/	50V
C4039	4822 122 33725	1µF/	16V
C4040	4822 124 11328	15µF/	6.3V
C4041	4822 126 11748	0.1µF/	16V
C4043	4822 126 11748	0.1µF/	16V
C4050	4822 126 11761	1000pF/	50V
C5001	4822 126 11763	0.01µF/	50V
C5005	4822 126 11763	0.01µF/	50V
C5006	4822 126 10942	4700pF/	50V
C5007	4822 126 11763	0.01µF/	50V
C5008	4822 126 10942	4700pF/	50V
C5009	4822 126 11748	0.1µF/	16V
C5010	4822 124 11233	22µF/	6.3V
C5012	4822 124 23604	4.7µF/	25V
C5013	4822 126 11763	0.01µF/	50V
C5015	4822 122 33808	0.01µF/	50V
C5016	4822 124 11233	22µF/	6.3V
C5017	4822 126 11748	0.1µF/	16V
C5018	4822 126 10687	1µF/	16V
C5019	4822 126 11763	0.01µF/	50V
C5020,21	4822 126 11792	68pF/	50V
C5022	4822 126 11763	0.01µF/	50V
C5023	4822 126 10687	1µF/	16V
C5024	4822 126 11748	0.1µF/	16V
C5025	4822 126 10687	1µF/	16V
C5026	4822 126 11763	0.01µF/	50V
C5027,28	4822 126 11792	68pF/	50V
C5029-31	4822 126 11763	0.01µF/	50V
C5033,34	4822 126 12759	0.047µF/	50V
C5035,36	4822 126 11763	0.01µF/	50V
C5038	5322 122 32654	0.022µF/	50V
C5039	4822 126 11765	120pF/	50V
C5040	4822 126 11768	150pF/	50V
C5041	4822 126 11763	0.01µF/	50V
C5042	4822 126 11782	39pF/	50V
C5043	4822 126 10687	1µF/	16V
C5044,45	4822 126 12759	0.047µF/	50V
C5046	4822 126 10687	1µF/	16V
C6001	4822 124 11237	3.3µF/	16V
C6002	4822 126 11748	0.1µF/	16V
C6005	4822 124 23908	220µF/	10V
C6006	4822 126 11748	0.1µF/	16V
C6007	4822 126 12176	0.33µF/	16V
C6009	4822 126 11753	0.022µF/	25V
C6010	4822 126 11789	560pF/	50V
C6011	4822 124 23242	10µF/	16V
C6012	4822 124 11281	10µF/	6.3V
C6013,14	4822 126 11731	1µF/	16V
C6015	4822 126 11748	0.1µF/	16V
C6016	4822 124 11288	15µF/	4V
C6017,18	4822 122 33725	1µF/	16V
C6019	4822 126 11748	0.1µF/	16V
C6020	4822 121 70331	0.039µF/	16V
C6021,22	4822 126 11748	0.1µF/	16V
C6023,24	4822 126 11764	12pF/	50V
C6025	4822 126 11748	0.1µF/	16V
C6026	4822 126 11763	0.01µF/	50V
C6027	4822 126 11748	0.1µF/	16V
C6028	4822 126 11765	120pF/	50V
C6029	4822 126 10687	1µF/	16V
C6030	4822 126 11761	1000pF/	50V
C6031,32	4822 124 23243	1µF/	50V
C6033	4822 126 11748	0.1µF/	16V
C6036,37	4822 126 11763	0.01µF/	50V
C6038	4822 124 23238	47µF/	6.3V
C6039	4822 126 11748	0.1µF/	16V
C6040	4822 126 11777	33pF/	50V
C6042	4822 126 11769	18pF/	50V
C6044,45	4822 126 11772	220pF/	50V
C6046	4822 126 11748	0.1µF/	16V
C6052	4822 126 11748	0.1µF/	16V
C6054	4822 126 11748	0.1µF/	16V
C6055	4822 124 11288	15µF/	4V
C6056,57	4822 126 11748	0.1µF/	16V
C6058	4822 126 10694	0.01µF/	50V
C6059	4822 126 11763	0.01µF/	50V
C6070	4822 126 11748	0.1µF/	16V
C6071	4822 124 23592	22µF/	10V
C6080	4822 126 11748	0.1µF/	16V
C6085,86	4822 126 11748	0.1µF/	16V
C8001	4822 126 11781	3300pF/	50V
C8003	4822 126 11763	0.01µF/	50V
C8007	4822 126 11763	0.01µF/	50V
C8031	4822 126 11792	68pF/	50V
C8035	4822 126 11748	0.1µF/	16V
C8036	4822 124 23238	47µF/	6.3V

DIODES

D1001	4822 130 80732	MA728
D1002	4822 130 82729	EC10QS04
D1003	4822 130 80727	MA110
D1004	4822 130 82729	EC10QS04
D1005	4822 130 82728	SB05-05CP
D1006,07	4822 130 82732	MA132K
D1008	4822 130 80732	MA728
D1009	4822 130 82813	RD10M
D1015	4822 130 82728	SB05-05CP
D1016,17	4822 130 83404	MA8130M
D3001,02	4822 130 80727	MA110
D5001	4822 130 82443	MA132WA
D5002	4822 130 82444	MA132WK
D5003	4822 130 82443	MA132WA
D6001	4822 130 82735	MA3130
D6002	4822 130 82443	MA132WA
D6003	4822 130 82445	MA133
D6004	4822 130 83496	MA132A
D6005	4822 130 82445	MA133
D6006	4822 130 82732	MA132K
D6007	4822 130 82443	MA132WA
D6008	4822 130 82444	MA132WK
D6010	4822 130 82445	MA133
D6015	4822 130 80727	MA110
D8001,02	4822 130 82732	MA132K

FILTERS

FL3001	4822 242 81594	ELB4D543

CONNECTORS

FP1002	4822 267 60342	CONNECTOR(24 PIN)
FP4002	4822 267 51193	CONNECTOR(07 PIN)
FP5001	4822 267 51191	CONNECTOR(13 PIN)
FP6001	4822 267 51244	CONNECTOR(18 PIN)
FP8001	4822 267 51301	CONNECTOR(10 PIN)

INTEGRATED CIRCUITS

IC1001	4822 209 31744	BA9705K
IC3001	4822 209 32473	VEFH32A
IC3002	4822 209 61991	TL8809F
IC3003	4822 209 31416	BA7062F
IC4001	4822 209 60597	BA7757BK
IC5001	4822 209 30334	AN3345FAS
IC6001	4822 209 32471	MN6755240V8F
IC6002	4822 209 31752	S3500B3
IC6003	4822 209 32469	MB90077102EF
IC6004	4822 209 63526	LM324DB
IC6005	4822 209 32464	BA6289F
IC6006	4822 209 63535	MN12821R

⚠......Safety component, use only this type

IC6007	4822 209 31762	XC62AP5002PR
IC6008	4822 209 61747	TC4S66F

COILS

L1001	4822 157 70259	coil 4.7µH
L1002	4822 157 70262	coil
L1003	4822 157 70259	coil 4.7µH
L1004	4822 157 62967	coil 10µH
L1005	4822 157 70264	coil
L1006	4822 157 62463	coil
L1007	4822 157 70263	coil
L1008	4822 157 70259	coil 4.7µH
L1009	4822 157 62967	coil 10µH
L1010,11	4822 157 62333	coil 100µH
L1012	4822 157 62967	coil 10µH
L3001	4822 157 63481	coil 56µH
L3002	4822 157 62455	coil 120µH
L3004	4822 157 52996	coil 100µH
L3005	4822 157 63962	coil 47µH
L3006	4822 157 62333	coil 100µH
L3007	4822 157 52996	coil 100µH
L3008	4822 157 70319	coil 220µH
L3009	4822 157 62975	coil 33µH
L3010	4822 157 63957	coil 15µH
L3011	4822 157 52996	coil 100µH
L3012	4822 157 70629	coil 22µH
L3013	4822 157 62333	coil 100µH
L3014	4822 157 62975	coil 33µH
L3015	4822 157 62333	coil 100µH
L3016	4822 157 62975	coil 33µH
L4002	4822 157 62333	coil 100µH
L5001-04	4822 157 62333	coil 100µH
L5005	4822 157 70632	coil
L6001	4822 157 63479	coil 100µH
L6002	4822 157 62491	coil 33µH
L8001	4822 157 70633	coil 68µH

CONNECTORS

P3001	4822 265 31146	CONNECTOR (MALE)
P4001	4822 265 31029	CONNECTOR (MALE)
P6001	4822 267 41074	CONNECTOR (MALE)
P6002	4822 265 20608	CONNECTOR (MALE)

TRANSISTORS

Q1001	4822 130 62345	2SB1073
Q1002,03	4822 130 42734	2SB798
Q1004	4822 130 62585	2SD2210
Q1005	4822 130 62345	2SB1073
Q1006	4822 130 42664	2SB970X
Q1007	4822 130 42734	2SB798
Q3001	4822 130 62586	2SD2216
Q3002,03	4822 130 62582	2SC4627
Q3004	4822 130 62586	2SD2216
Q3005	4822 130 62582	2SC4627
Q3006	4822 130 62203	XN4501
Q3007	4822 130 62202	XN4401
Q3008	4822 130 42664	2SB970X
Q3009	4822 130 62579	2SB1462
Q3010	4822 130 61067	XN1401
Q3011	4822 130 61082	2SC3938
Q3012	4822 130 61068	XN1501
Q3013	4822 130 62586	2SD2216
Q3014	4822 130 62579	2SB1462
Q3015	4822 130 62582	2SC4627
Q3016,17	4822 130 62579	2SB1462
Q3018	4822 130 62582	2SC4627
Q4001	4822 130 61077	2SB1220
Q4002,03	4822 130 62586	2SD2216-R
Q4004	4822 130 62586	2SD2216
Q4005	4822 130 62585	2SD2210
Q4007	4822 130 62586	2SD2216
Q4008	4822 130 42664	2SB970X
Q4009	4822 130 42668	2SD1328
Q4010	4822 130 62576	XP4501
Q5001	4822 130 42664	2SB970X
Q5002,03	4822 130 62225	XN4504
Q5004,05	4822 130 61074	2SA812
Q6001	4822 130 62586	2SD2216
Q6002	4822 130 42664	2SB970X
Q6003,04	4822 130 62586	2SD2216

TRANSISTOR RESISTORS

QR1001	4822 130 63341	MRN2111
QR1002	4822 130 63336	MRN1107
QR1003	4822 130 63339	MRN2107
QR1004	4822 130 63336	MRN1107
QR1005	4822 130 63337	MRN1110
QR3001	4822 130 63333	MRN1103
QR3004	4822 130 63333	MRN1103
QR3005	4822 130 63335	MRN1104
QR3006-0	4822 130 63333	MRN1103
QR4001	4822 130 62562	UN9210
QR4002	4822 130 63335	MRN1104
QR5001	4822 130 63335	MRN1104
QR5002,0	4822 130 61065	XN1213
QR5004	4822 130 63333	MRN1103
QR6001	4822 130 63338	MRN2103
QR6002,0	4822 130 63341	MRN2111
QR6004	4822 130 61065	XN1213
QR6005	4822 130 62562	UN9210
QR6006-0	4822 130 63335	MRN1104
QR6013	4822 130 63335	MRN1104
QR6015	4822 130 62557	UN9110
QR6016	4822 130 63335	MRN1104

RESISTORS

R1001	4822 116 83317		
R1002	4822 117 10133		
R1003	4822 116 81046	1KΩ	1/16W
R1004	4822 116 81084	390Ω	1/16W
R1005	4822 117 10135		
R1006	4822 117 10133		
R1007	4822 116 83295	33Ω	1/8W
R1008	4822 116 83312		
R1009	4822 116 83313		
R1010	4822 116 81052	1.2KΩ	1/16W
R1011	4822 051 20391	390Ω	1/10W
R1012	4822 051 30163	16KΩ	1/16W
R1013	4822 116 82495	39KΩ	1/16W
R1014,15	4822 117 10131		
R1016	4822 116 83306	15KΩ	1/10W
R1017	4822 051 20102	1KΩ	1/10W
R1018	4822 116 81055	150Ω	1/16W
R1019	4822 051 20102	1KΩ	1/10W
R1020	4822 116 81055	150Ω	1/16W
R1021	4822 116 81077	33Ω	1/16W
R1022	4822 116 81094	56Ω	1/16W
R1023	4822 116 81062	1.8KΩ	1/16W
R1024	4822 116 81088	47Ω	1/16W
R1025	4822 051 20102	1KΩ	1/10W
R1026	4822 116 81046	1KΩ	1/16W
R1027	4822 116 81055	150Ω	1/16W
R1031	4822 116 81147	0Ω	1/10W
R1032	4822 116 81047	10KΩ	1/16W
R1033	4822 116 81046	1KΩ	1/16W
R1034	4822 051 20471	470Ω	1/10W
R1035	4822 116 81088	47Ω	1/16W
R1036	4822 117 10138	182Ω	1/10W
R1037	4822 117 10128	240Ω	1/10W
R1038	4822 117 10129	91Ω	1/10W
R1039	4822 116 81047	10KΩ	1/16W
R1040,41	4822 051 10121	120Ω	1/8W
R3001	4822 116 81046	1KΩ	1/16W
R3004	4822 116 81078	330Ω	1/16W
R3008	4822 116 81052	1.2KΩ	1/16W

⚠......Safety component, use only this type

REPLACEMENT PARTSLIST M610

R3009	4822 116 81107	820Ω	1/16W
R3010	4822 116 81056	1.5KΩ	1/16W
R3011	4822 116 81046	1KΩ	1/16W
R3012	4822 116 81052	1.2KΩ	1/16W
R3013	4822 116 81046	1KΩ	1/16W
R3014	4822 116 81045	100Ω	1/16W
R3015,16	4822 116 81047	10KΩ	1/16W
R3017,18	4822 116 81095	560Ω	1/16W
R3019,20	4822 116 81099	680Ω	1/16W
R3021	4822 116 81056	1.5KΩ	1/16W
R3024	4822 116 81091	4.7KΩ	1/16W
R3025	4822 116 81088	47Ω	1/16W
R3026	4822 116 81107	820Ω	1/16W
R3027	4822 116 81046	1KΩ	1/16W
R3028	4822 116 81062	1.8KΩ	1/16W
R3029	4822 116 81052	1.2KΩ	1/16W
R3030	4822 116 81068	2.2KΩ	1/16W
R3031	4822 116 81046	1KΩ	1/16W
R3032	4822 116 81086	39KΩ	1/16W
R3033	4822 116 81071	220KΩ	1/16W
R3034	4822 116 81093	470KΩ	1/16W
R3035	4822 051 30134	130KΩ	1/16W
R3036	4822 116 81081	33KΩ	1/16W
R3038,39	4822 116 81112	0.00Ω	1/16W
R3042	4822 116 81085	3.9KΩ	1/16W
R3043	4822 116 81074	2.7KΩ	1/16W
R3044	4822 116 81085	3.9KΩ	1/16W
R3045	4822 116 81074	2.7KΩ	1/16W
R3046	4822 116 81096	5.6KΩ	1/16W
R3047	4822 116 81074	2.7KΩ	1/16W
R3048	4822 116 81046	1KΩ	1/16W
R3049	4822 116 81079	3.3KΩ	1/16W
R3053	4822 117 10607	680Ω	1/16W
R3054	4822 116 81112	0.00Ω	1/16W
R3056	4822 116 81046	1KΩ	1/16W
R3057	4822 116 81056	1.5KΩ	1/16W
R3058	4822 116 81079	3.3KΩ	1/16W
R3059	4822 116 81068	2.2KΩ	1/16W
R3061	4822 116 81089	470Ω	1/16W
R3062	4822 116 81084	390Ω	1/16W
R3063	4822 116 81068	2.2KΩ	1/16W
R3064	4822 116 81046	1KΩ	1/16W
R3066,67	4822 116 81074	2.7KΩ	1/16W
R3070	4822 116 81046	1KΩ	1/16W
R3072,73	4822 116 83781	1.8KΩ	1/16W
R3074	4822 116 82792	5.6KΩ	1/16W
R3075	4822 116 82575	3.3KΩ	1/16W
R3076	4822 116 81062	1.8KΩ	1/16W
R3077	4822 116 81046	1KΩ	1/16W
R3084	4822 051 30225	2.2MΩ	1/16W
R4001	4822 116 81044	10Ω	1/16W
R4002	4822 116 81081	33KΩ	1/16W
R4003	4822 100 12029		
R4004	4822 116 81082	330KΩ	1/16W
R4005	4822 100 12031		
R4008	4822 116 81057	15KΩ	1/16W
R4009	4822 116 81049	1MΩ	1/16W
R4010	4822 116 81053	12KΩ	1/16W
R4011	4822 116 81081	33KΩ	1/16W
R4012	4822 116 81068	2.2KΩ	1/16W
R4014	4822 116 81056	1.5KΩ	1/16W
R4016	4822 116 81078	330Ω	1/16W
R4017	4822 116 81069	22KΩ	1/16W
R4019,20	4822 116 81091	4.7KΩ	1/16W
R4021	4822 116 81069	22KΩ	1/16W
R4022	4822 116 81097	56KΩ	1/16W
R4024	4822 116 81096	5.6KΩ	1/16W
R4025,26	4822 116 81047	10KΩ	1/16W
R4027	4822 116 81078	330Ω	1/16W
R4028	4822 116 81068	2.2KΩ	1/16W
R4029	4822 116 81069	22KΩ	1/16W
R4030	4822 116 81095	560Ω	1/16W
R4031	4822 116 81097	56KΩ	1/16W
R4033	4822 116 81046	1KΩ	1/16W
R4034	4822 116 81062	1.8KΩ	1/16W
R4035	4822 116 81057	15KΩ	1/16W
R4036	4822 116 81088	47Ω	1/16W
R4038	4822 116 81085	3.9KΩ	1/16W
R4039	4822 116 81063	18KΩ	1/16W
R4040	4822 116 81068	2.2KΩ	1/16W
R4043	4822 116 81046	1KΩ	1/16W
R4044	4822 116 81074	2.7KΩ	1/16W
R4045	4822 116 81099	680Ω	1/16W
R4046	4822 116 81085	3.9KΩ	1/16W
R4047	4822 116 81046	1KΩ	1/16W
R4048	4822 116 81102	68KΩ	1/16W
R4049	4822 116 81048	100KΩ	1/16W
R4051	4822 116 81069	22KΩ	1/16W
R4052	4822 116 81147	0Ω	1/10W
R4053	4822 116 83271	2.2MΩ	1/10W
R4055	4822 100 12028		
R4056	4822 100 12027		
R5002,03	4822 116 81079	3.3KΩ	1/16W
R5004	4822 116 81074	2.7KΩ	1/16W
R5005	4822 116 81044	10Ω	1/16W
R5009	4822 116 81047	10KΩ	1/16W
R5011-14	4822 116 81069	22KΩ	1/16W
R5015	4822 116 81062	1.8KΩ	1/16W
R5016	4822 116 81046	1KΩ	1/16W
R5017	4822 116 81047	10KΩ	1/16W
R5020	4822 116 81097	56KΩ	1/16W
R5021	4822 116 81062	1.8KΩ	1/16W
R5022	4822 116 81097	56KΩ	1/16W
R5023	4822 116 81062	1.8KΩ	1/16W
R5025,26	4822 116 81099	680Ω	1/16W
R5028,29	4822 116 81062	1.8KΩ	1/16W
R5030,31	4822 116 81085	3.9KΩ	1/16W
R5033,34	4822 116 81085	3.9KΩ	1/16W
R5035	4822 116 81099	680Ω	1/16W
R5037	4822 116 81099	680Ω	1/16W
R5039	4822 116 81063	18KΩ	1/16W
R5040	4822 116 81142	8.2KΩ	1/16W
R5041	4822 116 81084	390Ω	1/16W
R5042	4822 116 81061	180Ω	1/16W
R5043	4822 116 83273	4.7Ω	1/10W
R5047	4822 116 81046	1KΩ	1/16W
R5048	4822 116 81089	470Ω	1/16W
R6001	4822 116 81091	4.7KΩ	1/16W
R6003	4822 116 81048	100KΩ	1/16W
R6004	4822 116 81101	6.8KΩ	1/16W
R6005	4822 116 81047	10KΩ	1/16W
R6006,07	4822 116 81068	2.2KΩ	1/16W
R6008	4822 116 81061	180Ω	1/16W
R6009	4822 116 81068	2.2KΩ	1/16W
R6010,11	4822 116 81048	100KΩ	1/16W
R6012	4822 116 81057	15KΩ	1/16W
R6013,14	4822 116 81102	68KΩ	1/16W
R6015,16	4822 116 81046	1KΩ	1/16W
R6017-19	4822 116 81092	47KΩ	1/16W
R6020-22	4822 116 81102	68KΩ	1/16W
R6023	4822 116 81112	0.00Ω	1/16W
R6024-26	4822 116 81102	68KΩ	1/16W
R6027	4822 116 81046	1KΩ	1/16W
R6028	4822 116 81102	68KΩ	1/16W
R6029	4822 116 81047	10KΩ	1/16W
R6030	4822 116 81086	39KΩ	1/16W
R6031,32	4822 116 81102	68KΩ	1/16W
R6033	4822 116 81087	390KΩ	1/16W
R6034	4822 116 81092	47KΩ	1/16W
R6035,36	4822 116 81046	1KΩ	1/16W
R6037	4822 116 81102	68KΩ	1/16W
R6045	4822 116 81102	68KΩ	1/16W
R6046	4822 116 81046	1KΩ	1/16W
R6047	4822 116 81048	100KΩ	1/16W
R6048	4822 116 81053	12KΩ	1/16W
R6049	4822 116 81086	39KΩ	1/16W
R6058	4822 116 81046	1KΩ	1/16W
R6061	4822 116 81048	100KΩ	1/16W
R6063	4822 116 81048	100KΩ	1/16W
R6064	4822 116 81046	1KΩ	1/16W

⚠......Safety component, use only this type

REPLACEMENT PARTSLIST M610

R6065	4822 116 81103	680KΩ	1/16W
R6066,67	4822 116 81097	56KΩ	1/16W
R6068	4822 116 81074	2.7KΩ	1/16W
R6069	4822 116 81097	56KΩ	1/16W
R6070	4822 116 81074	2.7KΩ	1/16W
R6071	4822 116 81097	56KΩ	1/16W
R6072	4822 116 81057	15KΩ	1/16W
R6073,74	4822 116 81064	180KΩ	1/16W
R6075-77	4822 116 81092	47KΩ	1/16W
R6078	4822 116 83299	68Ω	1/8W
R6079	4822 116 81069	22KΩ	1/16W
R6080	4822 116 81093	470KΩ	1/16W
R6081,82	4822 116 81091	4.7KΩ	1/16W
R6083,84	4822 116 81074	2.7KΩ	1/16W
R6085,86	4822 116 81047	10KΩ	1/16W
R6087,88	4822 116 81068	2.2KΩ	1/16W
R6089,90	4822 116 81045	100Ω	1/16W
R6091	4822 116 81102	68KΩ	1/16W
R6092-94	4822 116 81046	1KΩ	1/16W
R6095	4822 116 81092	47KΩ	1/16W
R6096	4822 116 81047	10KΩ	1/16W
R6097	4822 116 81056	1.5KΩ	1/16W
R6098	4822 116 81102	68KΩ	1/16W
R6100	4822 117 10134		
R6101	4822 117 10132		
R6102	4822 116 81046	1KΩ	1/16W
R6105	4822 116 81092	47KΩ	1/16W
R6107,08	4822 051 20471	470Ω	1/10W
R6109	4822 116 83294	270Ω	1/8W
R6112	4822 116 81046	1KΩ	1/16W
R6113	4822 116 81092	47KΩ	1/16W
R6114	4822 116 81093	470KΩ	1/16W
R6115	4822 116 81109	820KΩ	1/16W
R6116	4822 116 81046	1KΩ	1/16W
R6119	4822 116 81102	68KΩ	1/16W
R6123	4822 051 10228	2.2Ω	1/8W
R6124	4822 116 81046	1KΩ	1/16W
R6127	4822 116 81046	1KΩ	1/16W
R6131	4822 116 81046	1KΩ	1/16W
R8001	4822 116 81096	5.6KΩ	1/16W
R8002	4822 116 81047	10KΩ	1/16W
R8008	4822 116 81089	470Ω	1/16W
R8013	4822 116 81095	560Ω	1/16W
R8014	4822 116 81112	0.00Ω	1/16W
R8030	4822 116 81112	0.00Ω	1/16W
R8031	4822 116 81047	10KΩ	1/16W

RESISTORS

RA6001,0	4822 111 92097
RA6003	4822 111 92151
RA6004,0	4822 111 92097
RA6006	4822 111 92151

TRANSFORMERS

T1001	4822 146 21736	TRANSFORMER
T4001	4822 157 63483	TRANSFORMER

VARIABLE RESISTORS

VR3001	4822 101 30776
VR3002	4822 101 30779
VR3003	4822 101 30783
VR3004,0	4822 101 30779
VR4002	4822 101 30785
VR6201	4822 101 30778
VR8001	4822 101 30784

CRYSTALS

X6001	4822 242 81227	CRYSTAL OSCILLATOR
X6002	4822 242 73912	CRYSTAL OSCILLATOR
X8001	4822 242 81507	CRYSTAL OSCILLATOR

MISCELLANEOUS

	4822 466 62395	POWER SHIELD (TOP)
	4822 466 62401	POWER SHIELD (BOTTOM)
	4822 265 31094	MIC CABLE

SECAM ENCODER C.B.A.

CAPACITORS

C8501	4822 126 11763	0.01µF/	50V
C8502	4822 124 11103	10µF/	10V
C8503-05	4822 126 11763	0.01µF/	50V
C8506	4822 126 11772	220pF/	50V
C8507-10	4822 126 11763	0.01µF/	50V
C8511	4822 126 11789	560pF/	50V
C8512	4822 126 11763	0.01µF/	50V
C8514	4822 124 11103	10µF/	10V
C8515	4822 126 11763	0.01µF/	50V
C8516	4822 126 11777	33pF/	50V
C8517	4822 126 11759	100pF/	50V
C8518,19	4822 126 11763	0.01µF/	50V
C8520	4822 126 11257	0.1µF/	16V
C8521	4822 126 11775	270pF/	50V
C8522	4822 126 11777	33pF/	50V
C8523	4822 126 11763	0.01µF/	50V
C8524	5322 122 32654	0.022µF/	50V
C8525	4822 126 11763	0.01µF/	50V
C8526	4822 124 11103	10µF/	10V
C8527-30	4822 126 11763	0.01µF/	50V
C8601	4822 124 11103	10µF/	10V
C8602	4822 126 11763	0.01µF/	50V
C8603	4822 126 11767	15pF/	50V
C8604	4822 126 11774	27pF/	50V
C8605	4822 126 11785	47pF/	50V
C8607-09	4822 126 11763	0.01µF/	50V
C8610,11	4822 126 11748	0.1µF/	16V
C8612,13	4822 126 11792	68pF/	50V
C8614	4822 126 11793	680pF/	50V
C8616	4822 124 11238	0.33µF/	35V
C8617	4822 126 11751	0.047µF/	16V
C8618	4822 124 11103	10µF/	10V
C8619	4822 126 11773	2200pF/	50V
C8620	4822 126 11763	0.01µF/	50V
C8621	4822 121 70405		
C8622	4822 122 33725	1µF/	16V
C8623	4822 124 11103	10µF/	10V
C8624	4822 124 23237	22µF/	6.3V
C8625	4822 126 11771	22pF/	50V
C8626	4822 126 11759	100pF/	50V
C8651	4822 125 50286		
C8653	4822 126 12515	3pF/	50V
C8654	4822 126 11763	0.01µF/	50V
C8655	4822 124 11149	2.2µF/	16V
C8656,57	4822 126 11748	0.1µF/	16V
C8658	4822 124 11105	4.7µF/	10V
C8659	4822 126 11759	100pF/	50V
C8681	4822 126 11748	0.1µF/	16V
C8682	4822 126 10687	1µF/	16V

DIODES

D8501	4822 130 82732	MA132K
D8601,02	4822 130 82732	MA132K
D8651	4822 130 82167	MA334B

REPLACEMENT PARTSLIST M610

FILTERS

FL8501	4822 157 63662	EIK4EW011
FL8502	4822 157 63666	ELB4A517
FL8503	4822 157 63665	ELB4A516
FL8504	4822 157 63663	EIK4EW012
FL8505	4822 242 81593	EIK4EW017
FL8507	4822 242 81596	ELB4D549
FL8601	4822 157 63671	ELB4A515
FL8603	4822 157 63664	EIK4EW013

CONNECTORS

FP8501	4822 267 51189	CONNECTOR(10 PIN)
FP8601	4822 267 51297	CONNECTOR(08 PIN)

INTEGRATED CIRCUITS

IC8501	4822 209 30686	BA7107F
IC8601	4822 209 72958	M51282FP
IC8602	4822 209 30689	MN5175

COILS

L8501	4822 157 62333	coil 100µH
L8502	4822 157 62958	coil 220µH
L8503	4822 157 70624	coil 68µH
L8504	4822 157 63956	coil 12µH
L8505	4822 157 62958	coil 220µH
L8509,10	4822 157 62333	coil 100µH
L8601	4822 157 62968	coil 47µH
L8602	4822 157 63955	coil 10µH
L8651	4822 157 62968	coil 47µH
L8652	4822 157 52996	coil 100µH

CONNECTORS

P8681	4822 267 41074	CONNECTOR (MALE)

TRANSISTORS

Q8501-04	4822 130 62586	2SD2216
Q8507	4822 130 62809	XP1501
Q8508,09	4822 130 42664	2SB970X
Q8601,02	4822 130 62586	2SD2216
Q8603	4822 130 62582	2SC4627
Q8604	4822 130 62579	2SB1462
Q8605	4822 130 62586	2SD2216
Q8606	4822 130 62582	2SC4627
Q8607	4822 130 62579	2SB1462
Q8608	4822 130 62582	2SC4627
Q8681	4822 130 62579	2SB1462
Q8682	4822 130 62586	2SD2216
Q8683	4822 130 62574	XP1401

TRANSISTOR RESISTORS

QR8501	4822 130 63059	XP1213
QR8502,0	4822 130 62565	UN9213

RESISTORS

R8501	4822 116 81107	820Ω	1/16W
R8502	4822 116 81079	3.3KΩ	1/16W
R8503,04	4822 116 81053	12KΩ	1/16W
R8505	4822 116 81046	1KΩ	1/16W
R8506	4822 116 81053	12KΩ	1/16W
R8507	4822 116 81052	1.2KΩ	1/16W
R8508-11	4822 116 81046	1KΩ	1/16W
R8512	4822 116 81099	680Ω	1/16W
R8513	4822 116 81077	33Ω	1/16W
R8514	4822 116 81099	680Ω	1/16W
R8515	4822 117 10594	270Ω	1/32W
R8517,18	4822 116 81053	12KΩ	1/16W
R8520	4822 116 81046	1KΩ	1/16W
R8522	4822 116 81089	470Ω	1/16W
R8523	4822 116 81099	680Ω	1/16W
R8524	4822 116 81047	10KΩ	1/16W
R8525	4822 116 81095	560Ω	1/16W
R8526	4822 116 81067	220Ω	1/16W
R8527	4822 116 81107	820Ω	1/16W
R8529	4822 116 81076	270KΩ	1/16W
R8530	4822 116 81046	1KΩ	1/16W
R8531,32	4822 116 82493	47KΩ	1/16W
R8533	4822 116 81046	1KΩ	1/16W
R8537	4822 116 81045	100Ω	1/16W
R8540	4822 116 81142	8.2KΩ	1/16W
R8541	4822 116 81053	12KΩ	1/16W
R8542	4822 116 81096	5.6KΩ	1/16W
R8544	4822 116 81053	12KΩ	1/16W
R8545	4822 116 81047	10KΩ	1/16W
R8546	4822 116 81058	150KΩ	1/16W
R8547	4822 116 81091	4.7KΩ	1/16W
R8548	4822 116 81047	10KΩ	1/16W
R8549-51	4822 116 81091	4.7KΩ	1/16W
R8552	4822 116 81074	2.7KΩ	1/16W
R8553	4822 116 81046	1KΩ	1/16W
R8601,02	4822 116 81046	1KΩ	1/16W
R8603	4822 116 81074	2.7KΩ	1/16W
R8604	4822 116 81068	2.2KΩ	1/16W
R8605	4822 116 81046	1KΩ	1/16W
R8606	4822 116 81068	2.2KΩ	1/16W
R8607	4822 116 81085	3.9KΩ	1/16W
R8608-10	4822 116 81056	1.5KΩ	1/16W
R8611	4822 116 83806	1KΩ	1/32W
R8612	4822 116 81046	1KΩ	1/16W
R8613	4822 116 81063	18KΩ	1/16W
R8614	4822 116 81075	27KΩ	1/16W
R8615	4822 116 81079	3.3KΩ	1/16W
R8616	4822 116 81112	0Ω	1/16W
R8617	4822 116 81088	47Ω	1/16W
R8618	4822 116 81107	820Ω	1/16W
R8619	4822 116 81095	560Ω	1/16W
R8620	4822 116 81046	1KΩ	1/16W
R8621	4822 116 81063	18KΩ	1/16W
R8622	4822 116 81047	10KΩ	1/16W
R8623	4822 116 81096	5.6KΩ	1/16W
R8624	4822 116 81068	2.2KΩ	1/16W
R8625	4822 116 81046	1KΩ	1/16W
R8626	4822 116 81068	2.2KΩ	1/16W
R8627	4822 116 81046	1KΩ	1/16W
R8628	4822 116 83852	82KΩ	1/32W
R8630	4822 116 81089	470Ω	1/16W
R8631	4822 116 81108	82KΩ	1/16W
R8632	4822 116 81086	39KΩ	1/16W
R8633	4822 116 83807	10KΩ	1/32W
R8635	4822 116 81047	10KΩ	1/16W
R8638	4822 116 81047	10KΩ	1/16W
R8640	4822 116 81095	560Ω	1/16W
R8641	4822 116 52233	10KΩ	1/4W
R8642,43	4822 116 83807	10KΩ	1/32W
R8650	4822 116 81046	1KΩ	1/16W
R8651,52	4822 116 81047	10KΩ	1/16W
R8653	4822 116 81057	15KΩ	1/16W
R8654	4822 116 81085	3.9KΩ	1/16W
R8655	4822 116 81092	47KΩ	1/16W
R8656	4822 116 81142	8.2KΩ	1/16W
R8657,58	4822 116 81047	10KΩ	1/16W
R8660	4822 116 81047	10KΩ	1/16W
R8661	4822 116 83807	10KΩ	1/32W
R8662	4822 116 81047	10KΩ	1/16W
R8663	4822 116 81046	1KΩ	1/16W
R8667	4822 116 81101	6.8KΩ	1/16W
R8681	4822 116 81046	1KΩ	1/16W
R8682	4822 116 81091	4.7KΩ	1/16W
R8683,84	4822 116 81068	2.2KΩ	1/16W

⚠......Safety component, use only this type

REPLACEMENT PARTSLIST M610

THERMISTORS

TH8501	4822 111 92062	THERMISTOR

VARIABLE RESISTORS

VR8501	4822 100 30079	1KΩ
VR8502	4822 100 30083	200KΩ
VR8601,0	4822 100 30081	10KΩ
VR8604	4822 100 30082	20KΩ

CRYSTALS

X8651	4822 242 81076	CRYSTAL OSCILLATOR

VTR OPERATION C.B.A.

CONNECTORS

B6501	4822 267 51302	CONNECTOR (14 PIN)

DIODES

D6501	4822 130 80289	MA141WK
D6502	4822 130 80526	MA141K
D6503	4822 130 80289	MA141WK
D6504	4822 130 83041	CL150UR
D6505	4822 130 83403	CL150YG-CD-T
D6506	4822 130 80526	MA141K

MIC/IR C.B.A.

CAPACITORS

C051	4822 126 11748	0.1µF/	16V
C052	4822 124 23588	100µF/	6.3V
C4301	4822 124 23907	47µF/	4V
C4302	4822 126 11761	1000pF/	50V
C4303,04	4822 121 70404	0.22µF/	35V
C4305	4822 124 23242	10µF/	16V
C4307	4822 126 11761	1000pF/	50V
C4308	4822 124 23243	1µF/	50V
C4309	4822 126 11768	150pF/	50V
C4310,11	4822 124 23907	47µF/	4V
C4312	4822 124 11378	0.47µF/	25V

DIODES

D051	5322 130 81026	PH310-1
D4301	4822 130 83042	MA8056-M

JACKS

J4301	4822 267 31659	MIC JACK

CONNECTORS

P4301	4822 265 31029	CONNECTOR (MALE)

TRANSISTORS

Q051	4822 130 42666	2SD1030-S
Q4301	4822 130 61084	2SD1819
Q4302	4822 130 63053	2SC3929
Q4303,04	4822 130 61084	2SD1819

RESISTORS

R051	4822 051 20125	1.2MΩ	1/10W
R052	4822 051 20563	56KΩ	1/10W
R4301	4822 116 81067	220Ω	1/16W
R4302	4822 051 20222	2.2KΩ	1/10W
R4303,04	4822 051 20682	6.8KΩ	1/10W
R4305	4822 116 81107	820Ω	1/16W
R4306	4822 051 20332	3.3KΩ	1/10W
R4307	4822 116 81045	100Ω	1/16W
R4308	4822 116 81095	560Ω	1/16W
R4309	4822 116 81047	10KΩ	1/16W
R4310	4822 116 81045	100Ω	1/16W
R4311	4822 116 83727	390KΩ	1/10W
R4312	4822 051 20682	6.8KΩ	1/10W
R4313	4822 051 20181	180Ω	1/10W
R4314,15	4822 051 20332	3.3KΩ	1/10W
R4316	4822 116 81045	100Ω	1/16W
R4317	4822 116 81067	220Ω	1/16W

JACK C.B.A.

CONNECTORS

B1502	4822 267 51204	CONNECTOR (16 PIN)

CAPACITORS

C1501	4822 121 43234	0.1µF/	50V

DIODES

D6601	4822 130 43408	MA151WK
D6602	4822 130 32635	MA151K
D6603	4822 130 43408	MA151WK
D6604	4822 130 32635	MA151K

JACKS

J1501	4822 263 70245	POWER UNIT
J1502	4822 267 31661	CONNECTOR
J1503	4822 267 31662	CONNECTOR
J1504	4822 256 60335	BATTERY HOLDER

COILS

L1511,12	4822 157 70628	coil

RESISTORS

R1501	4822 051 10102	1KΩ	1/8W
R1502	4822 252 20204		

SWITCHES

S6601	4822 276 13419	SWITCH
S6603-06	4822 276 13419	SWITCH

AV JACK C.B.A.

CONNECTORS

B1501	4822 267 51245	CONNECTOR (10 PIN)

⚠......Safety component, use only this type

REPLACEMENT PARTSLIST M610

JACKS

J1504	4822 290 81608	A/V JACK PLATE

COILS

L1503	4822 157 70257	coil
L1504	4822 157 70254	coil

RESISTORS

R1506	4822 051 10008	0Ω	1/8W
R1507-09	4822 116 81147	0Ω	1/10W

MECHANISM FLEXIBLE C.B.A.

MISCELLAENOUS

4822 130 63184	REEL SENSOR
4822 256 92018	T REEL SENSOR HOLDER
4822 256 92019	S REEL SENSOR HOLDER

DRIVE C.B.A.

CAPACITORS

C2101	4822 124 80601		
C2102	4822 126 11734	0.01µF/	50V
C2103	4822 126 11748	0.1µF/	16V
C2104	4822 126 11738	0.047µF/	50V
C2105	4822 126 11736	0.022µF/	50V
C2106	4822 126 11763	0.01µF/	50V
C2108,09	4822 126 11763	0.01µF/	50V
C2110	4822 126 11257	0.1µF/	16V
C2111-13	4822 126 11748	0.1µF/	16V
C2114	4822 124 11105	4.7µF/	10V
C2115	4822 126 11734	0.01µF/	50V
C2116	4822 126 11266	0.1µF/	25V
C2117	4822 126 11738	0.047µF/	50V
C2118	4822 126 11737	0.033µF/	50V
C2120	4822 124 11103	10µF/	10V
C2122-24	4822 126 11763	0.01µF/	50V
C2125	4822 126 11257	0.1µF/	16V
C2126-28	4822 126 11748	0.1µF/	16V
C2129	4822 124 80601		

INTEGRATED CIRCUITS

IC2101	4822 209 63522	AN3890FBS
IC2102	4822 209 63546	UN218CU
IC2103	4822 209 63522	AN3890FBS
IC2104	4822 209 63545	TDM3702

CONNECTORS

P2101	4822 265 51368	CONNECTOR (MALE)
P2102	4822 267 51244	CONNECTOR (FEMALE)
P2103	4822 267 51298	CONNECTOR (FEMALE)

TRANSISTORS

Q2111	4822 130 62586	2SD2216

RESISTORS

R2101	4822 116 81097	56KΩ	1/16W
R2102	4822 116 81068	2.2KΩ	1/16W
R2106	4822 116 81092	47KΩ	1/16W
R2108	4822 116 81074	2.7KΩ	1/16W
R2109	4822 116 81091	4.7KΩ	1/16W
R2110	4822 116 81097	56KΩ	1/16W
R2111	4822 116 81068	2.2KΩ	1/16W
R2113	4822 051 20101	100Ω	1/10W
R2114	4822 116 81089	470Ω	1/16W
R2115	4822 116 81046	1KΩ	1/16W
R2116	4822 116 83291	0.33Ω	1/8W
R2117,18	4822 116 81046	1KΩ	1/16W
R2119	4822 116 83291	0.33Ω	1/8W
R2120	4822 116 81056	1.5KΩ	1/16W
R2121	4822 116 81046	1KΩ	1/16W
R2123	4822 116 81112	0Ω	1/16W
R2125	4822 116 81061	180Ω	1/16W
R2162	4822 116 82842	82KΩ	1/16W
R2163,64	4822 116 82791	10KΩ	1/16W

S/S SWITCH C.B.A.

CONNECTORS

PJ6701	4822 265 30731	CONNECTOR(MALE)

SWITCHES

S6701	4822 276 13421	RUBBER CONTACT
S6702	4822 276 13418	SWITCH

EJECT SWITCH C.B.A.

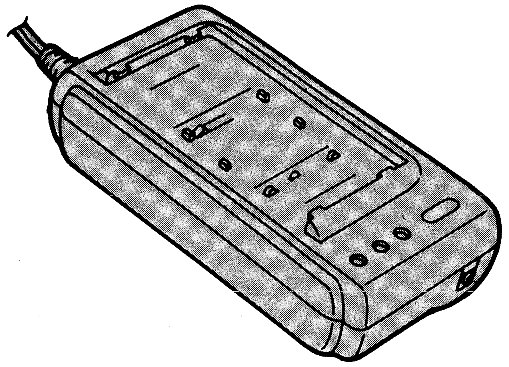
SWITCHES

S6703	4822 276 13149	SWITCH

⚠......Safety component, use only this type

Power supply/ Battery charger

SBC 5460/00



SPECIFICATIONS

ITEM	SPECIFICATION
POWER	Source: AC 100~240V, 50/60Hz (Automatic Voltage Adjustment)
	Consumption: Approx. 25W
	Output: DC 6V, 11.8W (Movie Camera Operation) DC 6V, 1.3A (Battery Pack Charging)
DIMENSIONS	143 (W) × 39 (H) × 72 (D) mm
WEIGHT	Approx. 240g (Without AC Cable)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice,

1. OPERATIONS INSTRUCTIONS

Power Supply

1 How to Use the AC Adaptor as Power Supply Unit

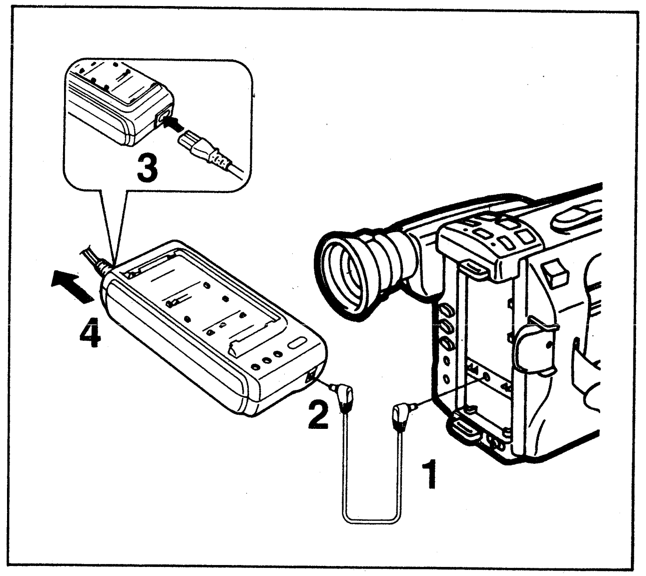
Note:
When using the AC Adaptor to supply the Movie Camera with power, do not attach the Battery Pack to AC Adaptor or the Movie Camera.

1 **Connect the DC Input Cable to the [DC IN] Socket on the Movie Camera.**

2 **Connect the other end of the cable to the DC Output Socket on the AC Adaptor.**

3 **Connect the AC Mains Cable to the AC Adaptor.**

4 **Connect the other end of the AC Mains Cable to the mains.**



2. DISASSEMBLY PROCEDURES

(1) Remove the Top Case.
  1. Remove the 2 screws.
  2. Unlock the 4 Locking Portions.
  3. Remove the Top Case.

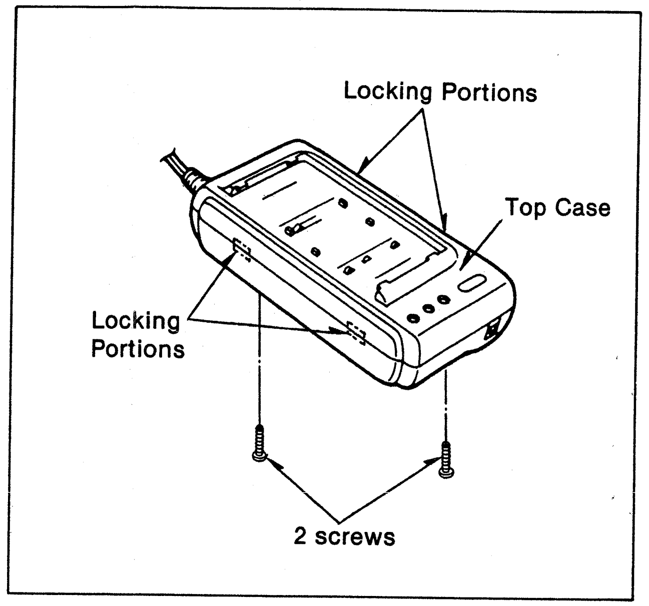
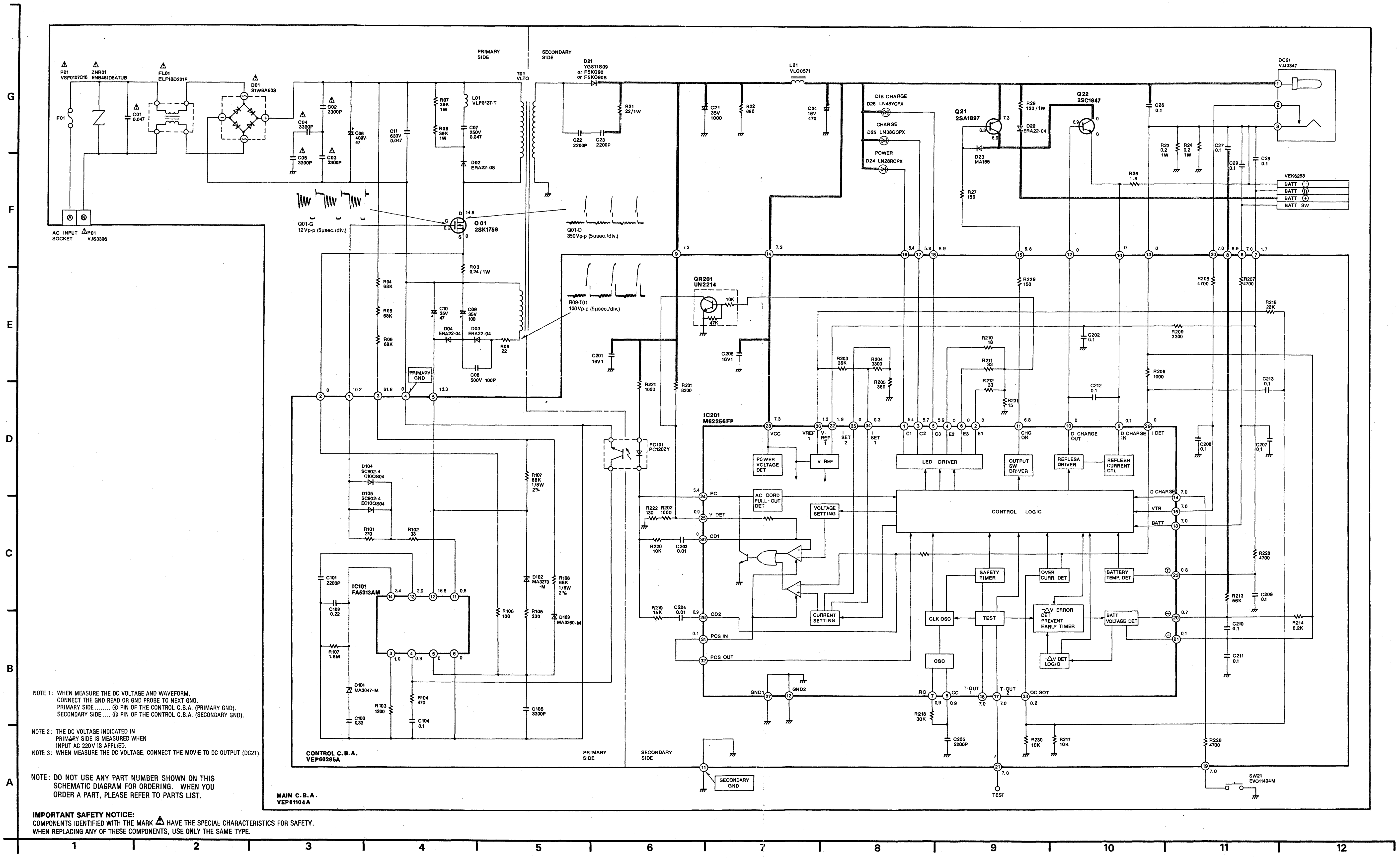


Fig. D1

3. AC ADAPTOR SCHEMATIC DIAGRAM


G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
PRIMARY SIDE
SECONDARY SIDE
F01 VSF0107C16
ZNR01 ENB461D5ATUB
FL01 ELF18D221F
D01 S1WBA60S
C01 0.047
C02 3300P
C03 3300P
C04 3300P
C05 3300P
C06 400V 47
C11 630V 0.047
R07 39K 1W
R08 39K 1W
L01 VLP0137-T
C07 250V 0.047
D02 ERA22-08
T01 VLTO
D21 YG811S09 or F5KQ90 or F5KQ90B
R21 22/1W
C22 2200P
C23 2200P
AC INPUT SOCKET
P01 VJS3306
Q01-G 12Vp-p (5μsec./div.)
Q 01 2SK1758
Q01-D 350Vp-p (5μsec./div.)
R03 0.24 / 1W
R04 68K
R05 68K
R06 68K
C10 35V 47
C09 35V 100
D04 ERA22-04
D03 ERA22-04
R09 22
C08 500V 100P
R09-T01 100Vp-p (5μsec./div.)
PRIMARY GND
D104 SC802-4 C10QS04
D105 SC802-4 EC10QS04
R101 270
R102 33
C101 2200P
C102 0.22
R107 1.8M
IC101 FA5313AM
D101 MA3047-M
R103 1200
R104 470
C103 0.33
C104 0.1
R106 100
R107 68K 1/8W 2%
R105 330
D102 MA3270-M
R108 68K 1/8W 2%
D103 MA3360-M
C105 3300P
PC101 PC120ZY
CONTROL C.B.A. VEP60295A
MAIN C.B.A. VEP61104A
L21 VLQ0571
C21 35V 1000
R22 680
C24 16V 470
DIS CHARGE D26 LN48YCPX
CHARGE D25 LN38GCPX
POWER D24 LN28RCPX
Q21 2SA1897
R29 120 /1W
D22 ERA22-04
D23 MA165
R27 150
Q22 2SC1847
C26 0.1
DC21 VJJ0347
R23 0.2 1W
R24 0.2 1W
C27 0.1
C29 0.1
C28 0.1
R26 1.8
VEK6263
BATT ⊖
BATT Ⓣ
BATT ⊕
BATT SW
QR201 UN2214
10K
47K
C201 16V1
C206 16V1
R221 1000
R201 8200
R229 150
R208 4700
R207 4700
R216 22K
R209 3300
C202 0.1
R203 36K
R204 3300
R205 360
R210 18
R211 33
R212 33
R231 15
R206 1000
C212 0.1
C213 0.1
IC201 M62256FP
VCC
VREF 1
V-REF T
I SET 2
I SET 1
C1
C2
C3
E2
E3
E1
CHG ON
D CHARGE OUT
D CHARGE IN
I DET
POWER VOLTAGE DET
V REF
LED DRIVER
OUTPUT SW DRIVER
REFLESA DRIVER
REFLESH CURRENT CTL
C208 0.1
C207 0.1
PC
V DET
CD1
CD2
PCS IN
PCS OUT
R222 130
R202 1000
R220 10K
C203 0.01
R219 15K
C204 0.01
AC CORD PULL-OUT DET
VOLTAGE SETTING
CONTROL LOGIC
CURRENT SETTING
SAFETY TIMER
OVER CURR. DET
BATTERY TEMP. DET
CLK OSC
TEST
−ΔV ERROR DET PREVENT EARLY TIMER
BATT VOLTAGE DET
OSC
−ΔV DET LOGIC
D CHARGE
VTR
BATT
R228 4700
R213 56K
C209 0.1
C210 0.1
C211 0.1
R214 6.2K
GND1
GND2
RC
CC
T-OUT 1
T-OUT 2
OC SOT
R218 30K
C205 2200P
R230 10K
R217 10K
R226 4700
SECONDARY GND
TEST
SW21 EVQ11404M

NOTE 1: WHEN MEASURE THE DC VOLTAGE AND WAVEFORM,
CONNECT THE GND READ OR GND PROBE TO NEXT GND.
PRIMARY SIDE........ ④ PIN OF THE CONTROL C.B.A. (PRIMARY GND).
SECONDARY SIDE .... ⑪ PIN OF THE CONTROL C.B.A. (SECONDARY GND).

NOTE 2: THE DC VOLTAGE INDICATED IN
PRIMARY SIDE IS MEASURED WHEN
INPUT AC 220V IS APPLIED.

NOTE 3: WHEN MEASURE THE DC VOLTAGE, CONNECT THE MOVIE TO DC OUTPUT (DC21).

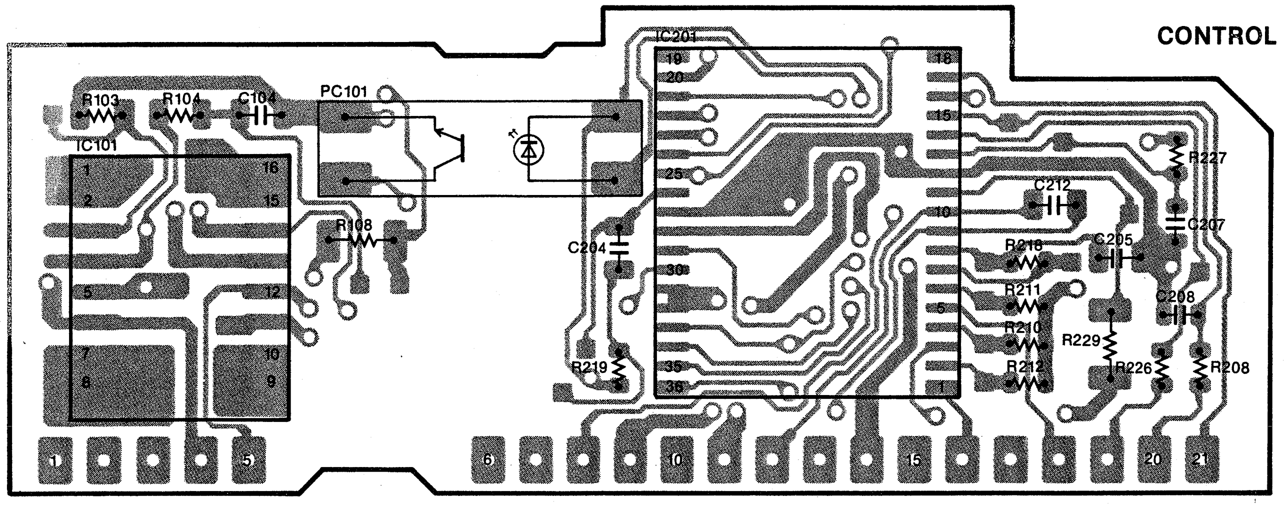
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

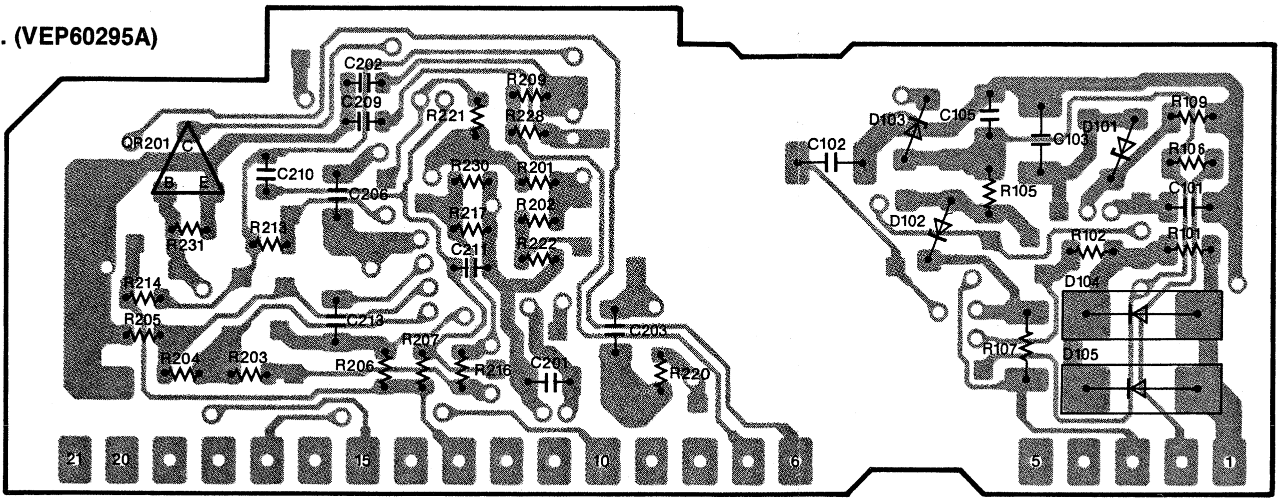
Back Page:
OPERATING INSTRUCTIONS &
DISASSEMBLY PROCEDURES

4. MAIN C.B.A. (VEP61104A) AND CONTROL C.B.A. (VEP60295A)

CONTROL C.B.A. (VEP60295A)

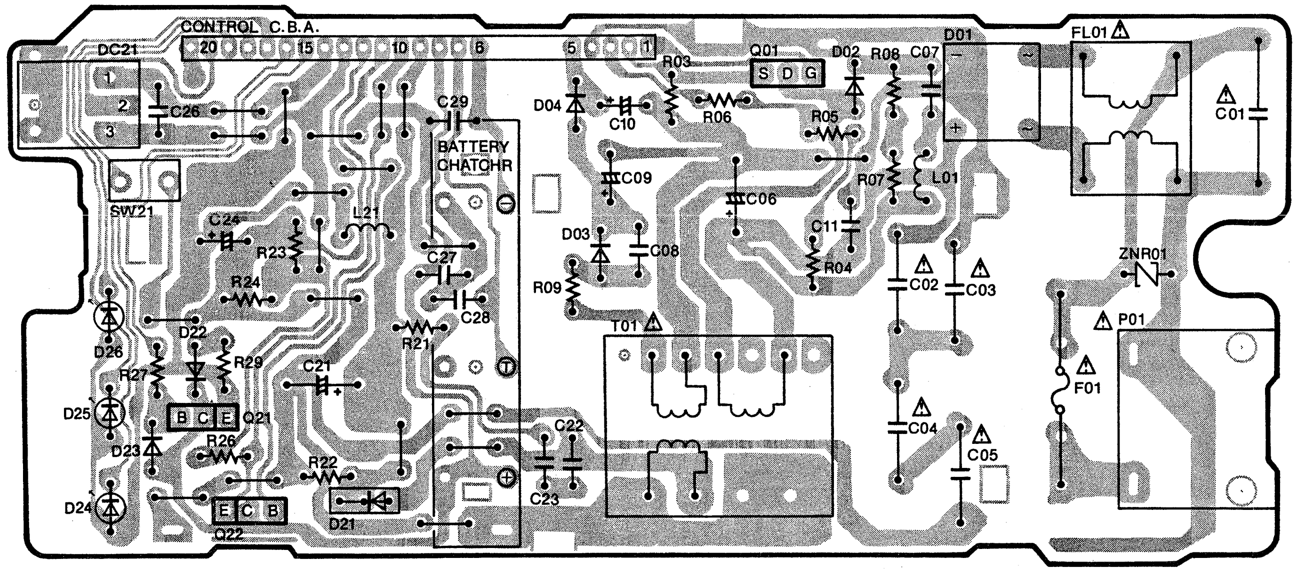

R103
R104
C104
PC101
IC101
R108
IC201
C204
C212
R227
C207
R218
C205
R211
C208
R210
R229
R212
R226
R208
R219
1
5
6
10
15
20
21

(COMPONENT SIDE)


C202
C209
R209
R228
R221
QR201
C210
C206
R230
R201
R217
R202
C211
R222
R213
R231
R214
R205
C213
R207
R204
R203
R206
R216
C201
C203
R220
C102
D103
C105
C103
D101
R109
R106
R105
C101
D102
R102
R101
D104
R107
D105
21
20
15
10
6
5
1

(FOIL SIDE)

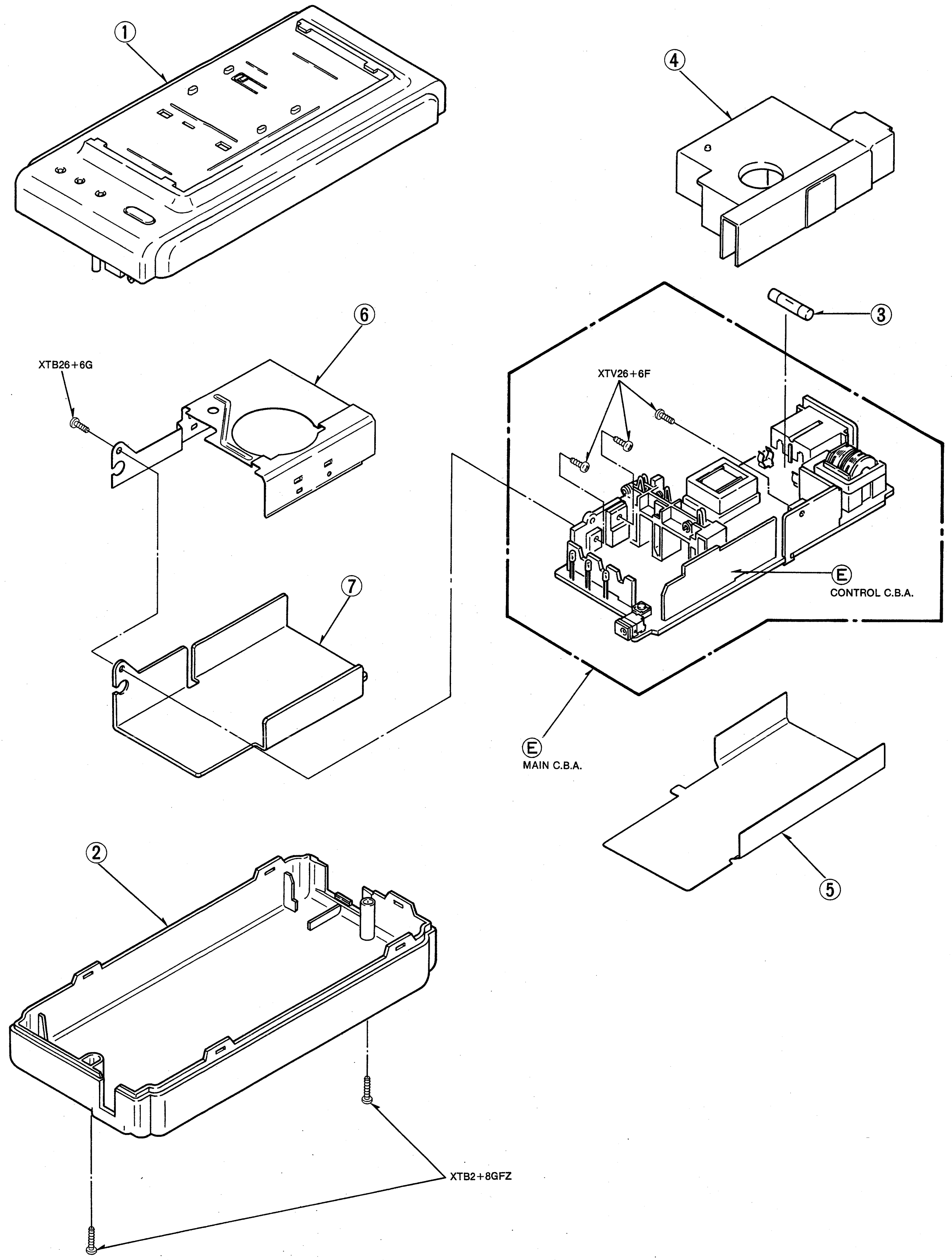
MAIN C.B.A. (VEP61104A)


CONTROL C.B.A.
DC21
C26
SW21
C29
BATTERY CHATCHR
C24
R23
L21
C27
R24
C28
R21
D26
D22
R29
C21
R27
D25
Q21
R26
D23
R22
D24
Q22
D21
C22
C23
D04
C10
R03
R06
Q01
D02
R08
C07
D01
FL01
C01
R05
C09
C06
R07
L01
D03
C08
C11
R04
R09
C02
C03
ZNR01
T01
P01
F01
C04
C05

C
B
A

1 2 3 4 5 6 7

5. EXPLODED VIEW



Back Page:
MAIN C.B.A. & CONTROL C.B.A. Section

SBC5460 replacement partslist

Mechanical parts

1(1)	4822 432 60774	TOP CASE UNIT
2(1)	4822 432 60773	BOTTOM CASE UNIT
3(1)⚠	4822 253 30436	FUSE (F01)
6(1)	4822 466 62396	SHIELD PLATE (UPPER)
7(1)	4822 466 62397	SHIELD PLATE (LOWER)
	4822 321 61319	DC CABLE
	4822 321 62082	AC CABLE

MAIN C.B.A.

Capacitors

C01⚠	4822 121 70332	0.047µF	250V
C02-05⚠	4822 126 12757	3300pF	
C06	4822 124 80597	47µF	400V
C07	4822 121 70129	0.047µF	250V
C08	4822 126 10008	100pF	500V
C09	4822 124 22933	100µF	35V
C10	4822 124 23905	47µF	35V
C11	4822 121 70131	0.047µF	630V
C21	4822 124 80596	1000µF	35V
C22,23	4822 126 12175	2200pF	500V
C24	4822 124 80598	470µF	16V
C26-29	4822 124 23912	0.1µF	50V
C101	4822 126 12758	2200pF	50V
C102	4822 126 11732	0.22µF	16V
C103	4822 126 12176	0.33µF	16V
C104	4822 126 12168	0.1µF	25V
C105	4822 122 33891	3300pF	50V
C201	4822 126 10687	1µF	16V
C202	4822 126 11748	0.1µF	16V
C203,04	5322 122 34098	0.01µF	25V
C205	4822 126 12758	2200pF	50V
C206	4822 126 10687	1µF	16V
C207-11	4822 126 11748	0.1µF	16V
C212,13	4822 126 12168	0.1µF	25V

Diodes

D01⚠	4822 130 83027	S1WBA60S
D02	4822 130 80701	ERA22-08
D03,04	4822 130 81256	ERA22-04
D21	4822 130 83015	F5KQ90B
D22	4822 130 81256	ERA22-04
D23	4822 130 82733	MA165VT
D24	4822 209 32466	LN28RCPX
D25	4822 209 32467	LN38GCPX
D26	4822 209 32468	LN48YCPX
D101	4822 130 81257	MA3047-M
D102	4822 130 83019	MA3270-M
D103	4822 130 83021	MA3360-M

Jacks

DC21	4822 267 31484	DC JACK
DC22	4822 691 20848	BATTERY CATCHER

Filter

FL01⚠	4822 157 63932	ELF18D221F

IC's

IC101	4822 209 32465	FA533AM
IC201	4822 209 32477	M6256FP

Coils

L01	4822 157 63933	COIL
L21	4822 157 63934	COIL

Connectors

P01⚠	4822 267 41096	CONNECTOR (FEMALE)

IC's

PC101⚠	4822 209 32478	PC120ZY

Transistors

Q01⚠	4822 130 63348	2SK1758
Q21	4822 130 63347	2SA1897
Q22	4822 130 63038	2SC1847
QR201	4822 130 61488	TRANS/RES.

Resistors

R03	4822 116 83746	0.24Ω	1W
R04-06	4822 116 52297	68kΩ	1/4W
R07,08	4822 117 10399	39kΩ	1W
R09	4822 116 52186	22Ω	1/4W
R21	4822 116 83731	22Ω	1W
R22	4822 116 83749	680Ω	1/4W
R23,24	4822 117 10402	0.20Ω	1W
R26⚠	4822 117 10401	1.8Ω	1/2W
R27	4822 116 83748	150Ω	1/4W
R29	4822 116 60555	120Ω	1W
R101	4822 051 20271	270Ω	1/10W
R102	4822 116 83287	33Ω	1/10W
R103	4822 116 83734	1.2kΩ	1/10W
R104	4822 051 20471	470Ω	1/10W
R105	4822 051 20331	330Ω	1/10W
R106	4822 051 20101	100Ω	1/10W
R107,08	4822 116 83743	68kΩ	1/8W
R109	4822 051 20185	1.8MΩ	1/10W
R201	4822 116 82276	8.2kΩ	1/16W
R202	4822 116 82574	1kΩ	1/16W
R203	4822 051 30363	36kΩ	1/16W
R204	4822 116 82575	3.3kΩ	1/16W
R205	4822 051 30361	360Ω	1/16W
R206	4822 116 81046	1kΩ	1/16W
R207	4822 116 81112	0Ω	1/16W
R208	4822 116 81091	4.7kΩ	1/16W
R209	4822 116 82575	3.3kΩ	1/16W
R210	4822 051 30189	18Ω	1/16W
R211,12	4822 116 81077	33Ω	1/16W

SBC5460 replacement partslist

R213	4822 116 82577	56kΩ	1/16W
R214	4822 051 30622	6.2kΩ	1/16W
R216	4822 051 30223	22kΩ	1/16W
R217	4822 116 82791	10kΩ	1/16W
R218	4822 116 82839	30kΩ	1/16W
R219	4822 116 81057	15kΩ	1/16W
R220	4822 116 81047	10kΩ	1/16W
R221	4822 116 81046	1kΩ	1/16W
R222	4822 051 30131	130Ω	1/16W
R226-28	4822 116 81091	4.7kΩ	1/16W
R229	4822 051 10151	150Ω	1/8W
R230	4822 051 30912	9.1kΩ	1/16W

Switches

SW21	4822 271 30697	SWITCH EVQ11404M

Transformers

T01⚠	4822 146 21737	TRANSF.VLT0714

Miscellaneous

ZNR01⚠	4822 130 83014	SURGE ABSORBER
	4822 256 92078	TERMINAL HOLDER
	4822 290 61165	TERMINAL (R)
	4822 290 61166	TERMINAL (L)